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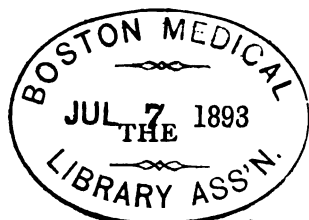
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BIRMINGHAM

MEDICAL REVIEW:

A MONTHLY JOURNAL

OF

THE MEDICAL SCIENCES.

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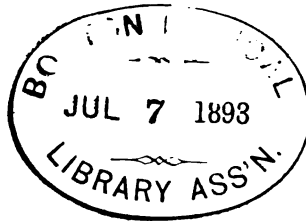
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THE
BIRMINGHAM MEDICAL REVIEW.
JANUARY, 1892.

ORIGINAL COMMUNICATIONS.

INFLUENZA EPIDEMIC OF 1891.*

BY ROBERT M. SIMON, M.D.
PHYSICIAN TO THE GENERAL HOSPITAL, BIRMINGHAM.

THE great epidemics of influenza in 1837 and 1847 had become, to probably all of us in this room, a prehistoric tale, when from the east of Europe, towards the end of 1889, came rumours of another outburst of the disease. We heard of enormous numbers of people being attacked by it, and of percentages of deaths so heavy that we, who had never encountered influenza, were almost incredulous. But at the end of the year and beginning of 1890 it became epidemic in the south-east of England, and by the end of February had spread throughout the country. For about two months it raged, and then gradually died away; but throughout the year only during three weeks was the name absent from the Registrar-General's reports. At the end of February this year it was heard of again at Hull, whence it spread to Sheffield, and from Sheffield it accompanied witnesses to a committee-room of the House of Commons, and after playing havoc with our legislators, accompanied them to their homes, and once more became epidemic throughout the country. How far this epidemic was the

* A Paper read before the Midland Medical Society.

rekindling of its predecessor's ashes, or if, as seems likely, it was brought to Hull by infected Russians in February, it is impossible to say ; but it is certain that it travelled from the coast to a few Yorkshire towns and thence to London, avoiding intermediate areas, before becoming disseminated.

The careful and thorough investigations of Dr. Parsons, set forth in his report to the Local Government Board, have very clearly demonstrated and proved the fact that influenza is a contagious disease, transmitted from place to place only by those who have suffered from it. It has been thought that the outbreaks of influenza, which have occurred on board ships that have been many days absent from port, were a proof that the contagion was a volatile one and could be blown from country to country and from place to place. These cases have never stood the test of critical examination, and of this, the oft-quoted outbreak in Kempenfeldt's squadron in 1782, is a sufficient instance.

The ships sailed on May 2nd and influenza appeared first on May 29th. This was supposed to be due to atmospheric conduction of the disease from a distance, but Dr. Gregory's explanation, if more prosaic, is also more probable. He says, "Our fleet was watching the Dutch ships in the Texel. The whole fleet was in admirable health and spirits, when a cutter arrived from the Admiralty, and the signal was given for an officer from each ship. An officer was accordingly sent with a boat's crew from every vessel, and returned with orders, carrying with them also, however, the influenza."

It is interesting in this connection to note that lighthouse keepers and deep-sea fishermen, however directly in the course taken by the disease, have never manifested it until brought into contact with those who have suffered from, or been in contact with the disease.

Of the contagion theory of influenza it would be easy to multiply instances, but it will suffice to quote two well-marked cases from Dr. Parsons' report:—

"The manager of a slate quarry, while in London for a few

days, lodged at a house where there were two cases of influenza. He returned home to Dolgelley on January 4th, ill; he was seen on January 5th and had well marked symptoms of a severe attack of influenza. On the 6th there were nine other cases in the same house; five or six days later several of the workmen were laid up, and since then the disease has been prevalent in this locality."

"To Wilton the first case was brought from Greenwich by a person suffering from it. Three days afterwards two patients who had been exposed to infection from him were taken ill, and then each of the households to which these belonged. In all cases personal communication seems to have been the cause."

It is of the greatest importance to establish the fact that it is an infectious disease, for to the old and to those who suffer from bronchial affections, it is of vital moment to avoid exposure to its influence.

The extraordinary rapidity of the spread of the disease during the late epidemic is doubtless due to the increased facilities for rapid travelling, and it is interesting in this context to note the opinion of Dr. Haygarth, of Chester, who, in 1782, showed that the disease did not travel faster than its victims. Fortunate is it that such seems undoubtedly the case, for otherwise we could not hope to protect our patients, and to prevent their catching the disease, by removing them to unaffected districts.

In 1890 the symptoms most commonly remarked were headache, pain in the back and limbs, and tenderness in the eyes, and a temperature rising sometimes to 104° , and falling often in 24 hours to the normal, unless kept up by the development of fresh, or increase of old standing organic disease. Catarrh of the nose and fauces were often associated with these, and bronchitis, which sometimes terminated in bronchopneumonia, but, as a rule, pulmonary complications were not a prominent occurrence. At this time diarrhoea, too, occurred not uncommonly, but the remarkable feature of the epidemic was the prostration and weakness which were altogether out of proportion to the amount of fever, and inexplicable by any of

the local affections. Other almost constant symptoms were tenderness over the spine, and suffusion of the conjunctivæ.

This year the disease has been much more severe in its course, and while muscular pains have been much less marked, the catarrhal symptoms have been more prominent. The disease has seemed to assume three distinct types.

A. Nervous.—Marked by head and muscular pains, associated with disproportionate depression.

B. Catarrhal.—Marked by tendency to congestion of the respiratory tract, and, even in mild cases, by disproportionate depression.

C. Gastric.—Marked by vomiting and diarrhœa, shorter in its duration than the other types, but accompanied by disproportionate and often alarming depression.

The dilatation of the conjunctival veins has led Dr. Thorne to formulate the theory that unless the microbes were swallowed and then caused the gastric type of the disease, they first attacked the eyes, and from them were carried through the tissues of the eye and optic nerve into the encephalon and spinal cord, or through the nasal duct into the nares, and thence to the larynx and œsophagus, developing symptoms of irritation according to their destination and the condition of the parts attacked. How far this theory may conform to pathological notions I cannot say, but certain it is that the groups of symptoms were generally distinct, having only and always in common the terrible and disproportionate depression. This underlay every case of influenza, and was its most constant and important manifestation.

On this symptom it is possible, I think, to theorise that influenza is a specific disease primarily affecting the nervous system, associated with local symptoms varying according to the distribution of the specific poison.

This opinion was held by Dr. Peyton Blakiston, of Birmingham, during the epidemic of 1837, and by Dr. Graves, of Dublin, in that of ten years later. It is, I think, supported by the restlessness and want of sleep which were so characteristic of the

worst type of cases, and by the cough and dyspnoea, which were altogether out of proportion to the evidences of catarrh. Dr. Graves thought that the pulmonary nerves in particular were affected, and that paralysis of the lungs and pneumonia were the direct consequence thereof.

As to the specific nature of the poison, endless theories have been advanced, and telluric influences, miasmatic poisons, and vegetable organisms have each had their day in the minds of speculative investigators; but to-day we are under the reign of microbes, and to microbes is the disease attributed. It is true that several different microbes have been credited with the responsibility; but it is probable that M. Roux is correct when he says that influenza is caused by one polymorphous micro-organism, which exhibits different forms in the varying phases of the disease. At all events, the tendency of educated opinion is to regard a microbe as its cause; and it is upon this theory that Dr. Thorne has based his explanation of the disease.

One of the most interesting features of the disease has been its connection with pneumonia, and of this I think there have been two types.

Catarrh, of greater or less severity, has occurred in a vast number of cases, but given a healthy patient, and one not disposed to bronchitis, this has usually passed away in a few days with the pyrexia, leaving the patient not much affected save by the prostration. This in itself has been a source of danger, for very often during the epidemic it was my lot to see strong men dying from pneumonia following only a slight attack of influenza. I saw only very few cases of pneumonia occurring in women, but in men very many. The history was generally given of a mild attack of influenza, so mild indeed that the patient could not be persuaded to stop at home, or take care of himself.

I have been told by many practitioners, and have often noticed for myself, that patients who have suffered from the disease have over and over again insisted on going out despite numerous small moist crepitations audible over the bases of one or both lungs. These gave no symptoms of cough or distress in breathing,

but lay latent as a focus of a fatal pneumonia to be fanned into activity by want of care or exposure. Probably the experience of most of us has been that we have never had such hopeless cases as these to deal with, when once pneumonia has declared itself.

Death was written in the face of most of our patients from the first, and though generally the consolidation was not so dense or extensive as in ordinary cases, the extraordinary cardiac depression, the rapid development of lividity and the extreme restlessness of our patients made the prognosis almost hopeless from the first.

The other and less fatal variety of pneumonia was that which occurred in those patients who, either from catarrhal predisposition or the extent of the primary catarrh, suffered from a gradual extension of catarrhal pneumonia. In them a variable amount of pyrexia lasted for days and sometimes weeks, varying with the arrest or extension of the pneumonia, but generally tending to recovery more or less complete.

More or less complete I say advisedly, for when in Berlin one met numerous patients who attributed their phthisis to the influenza from which they had suffered earlier in the year, and we must wait before we can determine how far we in England have suffered from a like result.

Of the gastric variety of symptoms I saw no fatal case, but the brief narratives of four patients I saw in the course of a short period suffering from this condition are, to my mind, most instructive.

Of these it will suffice to narrate two. "A medical man, who had been overworked and depressed by the almost sudden death of a friend from influenza, with pneumonia and cardiac failure, began on a Saturday in May to feel tired and ill. He was obliged to see some patients on Sunday, but was unable to enjoy a mid-day dinner, and spent the rest of the day on a sofa until he went to bed about eight o'clock feeling generally ill, rather than complaining of any special aches or pains. His temperature at this time was 100°. He awoke at six a.m. with

severe griping pain in the abdomen, and hurried to the water-closet. There, after a copious motion, he so nearly fainted that he was twice obliged to lie down on the floor before he could complete his toilet and walk to his bedroom, where he lay for some time completely collapsed, sweating profusely, and almost pulseless. From this state of collapse he soon recovered, and was able to get up in the evening, and out of the house next day, although for more than a fortnight he was exceedingly depressed in health and energy."

"M.R., aged 42, was admitted to the General Hospital under my charge on May 21st, 1891. The day before admission she had a slight aching pain in the abdomen and constipation, for which she took two pills. On the morning of the day of admission, immediately after her bowels had been opened, she was seized suddenly with such severe abdominal pain that she fainted. The pain continued until the afternoon when she was brought to the hospital. There had then been no vomiting. On admission she was in a state of great collapse. Temperature 96.4°, face blanched, lips bluish white, surface of body cold, pulse very small and feeble, breathing short and shallow. She complained of great pain in the epigastric region, where there was muscular resistance and great tenderness, but without general distension. She vomited once soon after admission. She was put to bed, surrounded with hot bottles, brandy was freely given, and a poultice was applied to the abdomen. She soon rallied, remained in the hospital for a week suffering from slight bronchial catarrh, and left feeling very weak and depressed.

I do not think I have ever in my professional work felt a more intense responsibility than in deciding not to interfere surgically in the case of the woman to whom I have just referred, and for some time to come, at least, it will be impossible for me to forget it, in dealing with cases of sudden collapse, associated with abdominal swelling and tenderness. Cases of the gastric type of the disease, as a rule, are rapid in their course, and, quite contrary to expectation, the patients are usually very soon able to take food and stimulants.

The prognosis in an uncomplicated case of influenza—meaning by that, one in which we get pyrexia associated with headache, muscular pain, and a slight amount of catarrh—is, so far as my experience goes, uniformly good. But what is true of most diseases is above all true in this—that it is not by the disease, but by the person who suffers from it that the prognosis is modified. Just as seed will grow in one place and produce no fruit in another, so is it with the germs of disease. Whether in one man phagocytic activity is more developed than in another I cannot say; but it is not on the virulence of the influenzal poison, it is on the vitality of our patients that the prognosis depends. Fortunately the disease occurred but rarely in very young children; where it did they usually got well, provided they were free from rachitis or other constitutional taints; and so with adults previous good health almost certainly ensured recovery. Such patients needed only care, warmth, and patience. Old people, however, and those who suffered from chronic bronchitis, diabetes, Bright's disease, or other affections which had impaired vitality, were always in imminent danger from extension of catarrh or cardiac failure.

I have spoken of the prognosis in connection with pneumonia when dealing with the relationship between that disease and influenza, and will only repeat that the danger was greatest in those who, from want of care, contracted pneumonia when still feeling the prostration of the disease, and not so great in those cases of catarrhal pneumonia which occurred from extension of bronchitis while the patient was under observation. What I thought of the greatest value in determining prognosis in any case was the ability to sleep and to take stimulants. Patients who could not sleep and were restless and wakeful, nearly always died; and the same was true, though in a minor degree, of those who, from gastric irritability, were unable to take stimulants.

It is curious to read Dr. Graves' serious discussion on the question of the advisability of bleeding patients suffering from influenza, and it is not surprising that he decides it is generally

wise not to do. The mortality in this late epidemic, fifty years later than those of Graves' time, has been heavy enough; but what it would have been under the good old heroic treatment of venesection it is impossible to imagine.

The key note of successful treatment was stimulation—by food, by alcohol, by tonics. Without being a disciple of Mortimer Granville, I confess that not even in the most adynamic form of typhoid have I ever prescribed so much alcohol, or seen better results therefrom. The prostration was so intense, and so out of proportion to the other evidences of the disease, that I considered it the symptom of all others to treat, and endeavoured to do so as I have said by pushing stimulation.

It was commonly necessary in early cases to relieve the frontal headache and orbital pain by free and often repeated doses of antipyrin, and this was generally effectual. The muscular and spinal pains were best treated by salicylate of sodium, but both of these drugs had to be administered watchfully owing to their tendency to increase prostration. For the restlessness and want of sleep very cautious use of morphia is to be made (chloral it is not well to give), but the best remedy I found to be cold packing, where the surroundings of the patient permitted this.

Such, I believe, to be the best method of treating these cases, special symptoms being, of course, treated in the special way demanded by them; but I do not think it is possible to protect those exposed to the contagion from its influence, and the only prophylactic treatment of any avail is the banishment to unaffected districts. This I feel so strongly that I would always insist upon it in the case of old, feeble, or diseased individuals.

In 1890 Dr. Price, of the City Gaol, tried to protect his prisoners and warders by giving four grains of quinine daily, but without very satisfactory results, and the public was enthusiastic in the use of ammoniated tincture of quinine for the same purpose and with the same result.

How much these efforts failed, does not however, invalidate

the wisdom of trying to put people into the best possible conditions for meeting an epidemic. Of much more importance than the prophylactic treatment is the after treatment of our patients, for they are so debilitated and prostrated that they are ready to fall a prey to any hurtful influences.

We have all seen so many diseases attributed to influenza as a primary cause that I am strongly inclined to think that, except in the cases where a catarrhal pneumonia has become permanent, or a middle ear catarrh starting at the time of the influenzal attack has resulted in perforation of the tympanum and otorrhœa, the connection is one of time rather than of cause, and that the only legacy of the disease has been the inability to meet fresh hurtful influences.

THE MANAGEMENT OF CHRONIC DISEASES OF THE HEART.*

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WHEN the Council of the Midland Medical Society did me the great honour of inviting me to deliver the customary Address at the commencement of the present session, I inquired of your late President—my present hospitable entertainer—whether a communication on some subject bearing on the daily practice of the physician would be acceptable, and on receiving a reply in the affirmative, I chose as my theme the Management of Chronic Diseases of the Heart.

They furnish us with a large portion of our work, and, although they are incurable, there are perhaps no maladies which afford greater opportunities for judicious treatment. I do not profess to bring forward new views or methods of treatment, but rather to give you the estimate I have myself formed

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as to the value of the various remedial measures, old and new, which have been recommended, and to state what appear to me to be the indications for their employment and the best means of using them.

Before I can do this, however, I think it necessary to describe very briefly the chief forms of chronic heart disease with which, according to my observations, we have to deal, and to allude to the value of certain symptoms and physical signs in revealing to us during life the condition of the heart and associated organs.

In youth and early manhood the kind of chronic cardiac mischief with which we have to do is chiefly hypertrophy and dilatation, first of the left chambers and then of the right, sequential to injury of the aortic or mitral valve or pericardial adhesions which have originated in ordinary acute rheumatism or in that form of rheumatism which is associated with scarlatina. These cases are more frequently seen in hospital than in private practice, and from this, I think, we may learn the value of *prolonged avoidance of exertion* after acute inflammation of the heart.

When a young person in easy circumstances is known to have emerged from acute rheumatism with a damaged heart, his friends are careful for months and years to protect him from cold and to restrain him from exertion, and as a consequence there occurs a complete subsidence of the inflammatory process and a gradual development of just that amount of hypertrophy of the muscular tissue which is sufficient to compensate the inefficient action of the valve. To this end, in addition to comparative rest, sufficient nourishment to build up good blood and muscle is required, and attention to the action of the bowels. The error indeed which, as far as I have seen, is most likely to be made is to attempt to hasten a return to health by tonic remedies, such as quinine, iron, and digitalis, which commonly increase palpitation and breathlessness. In those walks of life which supply hospital patients the same watchfulness and long-continued idleness are impossible. Manual

labour throws increased strain on damaged valves, and so keeps up the inflammatory process, which ends in thickenings and puckerings of the valvules. The contraction of the voluntary muscles renders the passage of blood through the arteries less easy, and drives the venous blood in augmented volume back to the right side of the heart, and, as a consequence, dilatation of the ventricles and auricles, pulmonary engorgement, and ultimately arrest of blood in the systemic venous system are produced. When these secondary ill effects are for the first time brought about, their removal is not commonly difficult. It is comparatively easy to restore the patient to comfort, but the difficulty is to keep him in this condition. We all know how often, when we have removed dropsy and breathlessness in the subjects to whom I allude, and when there is the appearance and the feeling of health, a very slight exertion will again disturb the circulatory balance and necessitate a return to hospital, and we also know that each time we have to deal with an overloaded venous system its clearance becomes more difficult.

Between the ages of 30 and 60 the large proportion of the cases of cardiac disease which present themselves to us are likewise cases of enlargement of the heart, in some hypertrophy and in others dilatation preponderating; but the associated changes are very different to those we meet with in earlier life.

1. It does occasionally happen, though very rarely, that a patient suffers from palpitation and shortness of breathing and subsequently from dropsy; that during life we find only the signs of hypertrophy and dilatation, and that after death we fail to discover valvular mischief, arterial disease, or changes in the kidney. There may not even have been during life much physical exertion, but if this has been absent there has usually been a life of excitement or a rather free indulgence in stimulants, or both. Such a case may terminate in death from venous over-fulness, although the muscular wall of the heart remains apparently healthy and dilatation is insignificant. This is the kind of case for which, according to my experience, we

can do least, and it is the case in which we are most puzzled to account for death. Indeed I do not know how we are to account for such a heart becoming more and more inefficient, unless we suppose an exhaustion of the nervous supply to occur.

2. We occasionally find a patient who has become gradually short of breath on exertion, and anasarous, and finally alarmingly ill, and in whom the physical signs point to great distension of the cardiac cavities, with little increase in the thickness of their walls. This likewise is a very unpromising condition. If we inquire into the antecedents of such patients, we will usually discover that they have for years taken very little exercise and used tobacco immoderately.

3. Breathlessness on exertion, and attacks of dyspnoea awaking the patient out of sleep, occurring in pale, soft women, and obese, flabby men, are not very uncommon. The pulse is usually rather frequent, but of fair size and regular. The impulse of the heart is indistinguishable owing to stoutness, and the sounds appear distant, but without murmur, and after death we find a great, big, dilated and somewhat hypertrophied heart, with a good deal of fat overlying the right ventricle

4. Much more common than the preceding types is the case of a man who becomes first short of breath on exertion, then dyspeptic and perhaps after years dropsical, and in whom we have the physical signs of hypertrophy and dilatation, with a murmur at the base of the heart, and in the course of the aorta due to atheroma of the great vessels, and with enlarged and thickened radial arteries due to similar change. In such cases I believe the mitral regurgitant murmur often present when the sufferer seeks advice is due not to disease of the mitral cusps, but to such dilation of the left ventricle and left auriculo-ventricular opening as renders it impossible for the cusps to close it. In such cases there is usually a history of considerable physical exertion and full living.

5. There is the hypertrophy with slight dilation, which goes along with chronic Bright's disease.

6. And, lastly, it is well to remember that sometimes, though very rarely, the valvules or the muscular wall of the heart may be the seat of syphilitic disease.

Those who seek our aid for heart disease *after they have passed sixty years of age* usually present very different symptoms and physical signs. They have commonly shortness of breath on exertion, and particularly that kind of shortness of breathing which prevents them lying down at night. They complain of fluttering of the heart, and there is generally extreme irregularity in the rhythm and force of the cardiac action. We have not infrequently temporary over-distension of the right side of the heart, but permanent enlargement of the heart, such as occurs in the cardiac maladies of early and middle life, is rare, and dropsy is absent or does not appear until late in the case. The anatomical changes which are present are degenerative, and consist of atheromatous disease in the first portion of the aorta and in the coronary vessels and sometimes in the valves, with fibroid or fatty change in the walls of the ventricles.

Lastly, we have in advanced life the small group of cases characterised by a very slow pulse and the pathological change in which is fatty degeneration of a more advanced kind.

These briefly are the varieties of chronic heart disease which we meet with, but when the physician is summoned to a patient suffering from any one of them he has, before he is in a position to prescribe for the patient, to make a diagnosis not only of the permanent anatomical change, but of the immediate cause of the symptoms. The former, indeed, is seldom susceptible of cure; the latter, if he correctly recognises it, he is generally able, for a time at least, successfully to combat. If we except sudden death from rupture of the heart, we may, I think, refer the immediate cause of suffering and often of death in all forms of chronic heart disease to one of the five following conditions:—

1. Over-distension of the cardiac cavities, and particularly of the right auricle and ventricle.

2. Inefficient systole in consequence either of want of power or want of regularity, and this inefficient systole may be evident in the working either of one or of both ventricles.

3. Defect in the organs which work along with and help the heart to send the blood through the systemic and pulmonary vessels. Arterial spasm on the systemic side and, though less frequently, bronchial spasm on the pulmonary side are the most frequent of these defects; but tardiness in the venous flow, possibly from changes in the veins themselves, and certainly at times from insufficient muscular exercise, must not be altogether ignored.

4. Disturbances of the innervation of the heart of cerebral or spinal origin, or originating in over-loading of the stomach, or in distension of the bowels, or in affections of the genito-urinary system.

5. An unhealthy condition of the blood, which may be imperfectly depurated, as occurs in gout and in Bright's disease; or abnormally watery, as we see in the various forms of anæmia.

Two of these factors may, of course, be present at the same time; but I am persuaded that the more carefully we try to find which of them is the predominating defect the more certainly will we select the right remedy, and avoid the employment of others which, however valuable in many cases of heart disease, may, in the one before us, be unnecessary or even injurious. The prognosis, no doubt, will depend on the nature and extent of the structural changes in the heart and associated organs and on the habits of the patient, but the efficient management of the case will depend, to a great degree, on a correct recognition of the immediate cause of suffering and danger and on a knowledge of the remedial measure which has most effect in removing such immediate cause.

First, then, in my enumeration, and first probably in importance, is *over-distension of the cardiac cavities*.

In both the forms of aortic valve disease, in mitral regurgitation, in inefficient contraction of the left ventricle due to failing hypertrophy, to dilation, or to degenerative change, one of the earliest effects is the accumulation of blood in the left ventricle, and in the left auricle, then in the pulmonary veins and in the capillaries of the lungs, and as a consequence, a state of tension in the pulmonary artery and of

distension in the right cavities, and, finally, in the ascending and descending venæ cavæ, and in all the organs whose veins drain into the venæ cavæ. Mitral narrowing, if pure, does not, of course, cause over-filling of the left ventricle, but equally, or more disastrously, does it impede the discharge of the left auricle and of all the parts behind it. The symptoms of this condition are oppression in the sternal region and in the epigastrium, an aggravation of the dyspnœa which exertion always produces in the patient, specially a difficulty in lying down, generally great dislike to take food, and a sense of overfulness afterwards. The signs are increase in the area of cardiac impulse, and, if it can be ascertained, an increase in the extent of cardiac dulness on percussion, accentuation of the pulmonary second sound as heard over the cartilages of the second and third ribs to the left of the sternum, fulness of the external jugular vein, specially on the right side, often fulness of the smaller veins in the neck and on the surface of the chest, and enlargement of the liver, which may be felt in the epigastrium and below the right costal arch. The state of the pulse will depend, not on the over-fulness of the venous side of the heart, but on the original disease. I think all of those who hear me will recognise in this a description of what they have seen over and over again when called to a person who has had for some time cardiac disease ; yet I do not think that we keep sufficiently before us the true state of affairs in such a case, and unless we do this we will not select the appropriate remedy.

The case is, no doubt, one of cardiac breathlessness ; yet ether and anti-spasmodics will not relieve the patient. It may be true enough that he has a weak heart, but tonics certainly, and, probably, stimulants also, will not help him. He may have one of the forms of heart disease in which digitalis is most useful, but it will do him no good now. What the sufferer needs is one or more of the following measures :—

1.—*The Removal of Blood.*—It need not be much. I suppose now and then one comes across a very aggravated case of this kind in which it is advisable to open a vein in the arm ;

but when I have done this I have not given the patient more relief than when I applied six leeches to the surface of the chest. It is an aggravation to a man who desires to change his position frequently to have his arm confined in a bandage, and to feel that if he disturbs it the wound will reopen. When this over-fulness of the venous side of the circulation occurs for the first time, say in a young person who has been left with a damaged mitral valve after acute rheumatism, the application of the leeches to the margin of the anus rapidly relieves ; but if the liver has become permanently swollen the artificial withdrawal of blood from the hæmorrhoidal veins does not ease the breathing, and leech bites in this situation sometimes become very painful. There are exceptional cases where the venous congestion is most apparent in the head and neck, the patient has dull headache with lividity of the face, or is heavy with sleep, and in such instances I have seen the drowsiness greatly lessened and the breathlessness distinctly relieved by the application of the leeches over the mastoid process ; but, as a rule, we get most good if we put some of the leeches on either side of the sternum on a level with the third interspaces, and the others over the ensiform cartilage. Five or six leeches are quite enough for an adult, but they should be vigorous leeches, which can be relied on to fasten nearly at the same moment and to draw the blood quickly. It is not desirable that the wounds should ooze afterwards ; on the contrary, it should be an injunction to the person who applies the leeches not to leave the house until they are securely staunched.

In the case of children two or even one leech will suffice. I would unnecessarily limit the indications for leeching in chronic heart disease if I insisted on the presence of a swollen liver or distended jugulars, or even accentuated second sound over the pulmonary artery as indications, without the presence of which leeches should never be applied. If all the symptoms and signs I have described are present you may be pretty sure that the patient, who has probably not had an hour's undisturbed sleep for days, will, after you have leeched him, get five or six hours'

refreshing rest ; but there are other cases of cardiac oppression and breathlessness without such marked signs of over-fullness of the cavities, in which nevertheless leeching does good, though we cannot with such confidence predict the advantage. There is no use in having recourse to it too frequently ; a certain interval—sometimes a few days, sometimes a few weeks—must generally elapse after the first leeching before it will give a second or a third time an equal relief. Some patients have a terror of loss of blood, and in such cases, and indeed in some other cases also, when there are signs of pulmonary engorgement, the dexterous application of five or six full-sized cupping-glasses to the back of the chest, by withdrawing rapidly blood from the venous system, will be found to give distinct relief, and so, too, will a blister three inches square if applied over the ensiform cartilage in such a manner as will produce a copious flow of serum.

2.—Next in value to the removal of blood in the emergency I have described is a *purgative dose of calomel*. From two to six grains, according to the age and strength of the patient, will suffice ; it should be given in powder, with a few grains of sugar of milk, and on an empty stomach, and about eight hours afterwards it should be followed by from two to six drachms of sulphate of soda in a little hot water, or if there be flatulent distension, by a warm rhubarb draught.

3. When we have to deal with over-full cardiac cavities, in addition to the employment of one or both of the means I have mentioned, advantage will arise from *limiting considerably the ingestion of fluid*, and from keeping the patient sitting up. Solid food is not digested in these cases, and yet copious drinks do great harm. Two or three ounces of well-made beef or chicken tea, or a similar quantity of nourishing lemonade, or a beaten-up egg, or a small cup of junket every third hour, is usually sufficient nourishment ; and, as a matter of experience, I think it better for such sufferers, instead of making ineffectual efforts to sleep in bed, to remain, even for several nights, pillowed up in an arm-chair. In this posture, the blood coming towards the

heart in the ascending cava does not so readily flow into the already too-full right auricle, but, on the contrary, much of the serum drains into the areolar tissue of the lower limbs—an occurrence which no doubt alarms the patient and his friends, but which, as a rule, need not disquiet us. Indeed, I might mention the production of œdema of the lower extremities by sitting up and the withdrawal of the serum by puncture as one of the measures which relieve an over-full heart, and so greatly lessen the thoracic oppression which it produces.

2. The second way in which chronic anatomical change in the heart brings on distressing and dangerous symptoms is by producing inefficient systole, either by powerless and incomplete contraction of the ventricular walls or by such irregular and frequent action as prevents an adequate charge of blood reaching the left ventricle before it contracts upon its contents.

It is less easy than is generally thought to diagnose failure of muscular power in the heart. It is necessary that we should not trust alone either to physical signs or to symptoms or to the pulse, but should gather what information we can from all these sources.

Absence of the cardiac impulse and of the apex beat even in a thin person must not be relied on. A tranquilly beating heart, even though sound, may fail, at all events during recumbency, to be appreciable by the finger of the physician. On the other hand, the undulatory impulse of a dilated heart or the powerless heave of failing hypertrophy may be felt, though death from cardiac fatigue may be imminent. *Feebleness of the sounds*, and especially of the first sound, is a sign of cardiac failure, and a reliable one in many cases; but in stout women and in men with large chests the heart sounds may be feebly heard, though the muscular contraction is fairly good. *Irregularity in force and rhythm* is not necessarily connected with failure of muscular power, but in the young is associated with stenosis or regurgitation at the mitral orifice, and in the aged, I think, with degenerative changes in the cardiac walls.

The peculiar form of reduplication which is most appropriately designated as the *cantering rhythm*, since it precisely resembles the sound we hear when a cantering horse is passing, is held, and I think correctly, to be characteristic of dilated heart, but is only heard when muscular contraction is rapidly failing, and usually justifies an unfavourable prognosis.

When in a case of mitral disease we have had over-filling of the pulmonary veins, and consequently increased tension in the pulmonary artery and augmented loudness in the click of its valvules, *disappearance of this accentuation of the second sound over the pulmonary artery* indicates great failure on the part of the right ventricle. In the same way, *feebleness or absence of aortic or mitral murmurs* which had previously been present suggests failing ventricular contraction in the left side.

Dyspnœa on exertion is present in most forms of heart disease. When it becomes intense, it is occasionally rendered so by temporary distension of the cardiac cavities, and will then be lessened by the remedial measures I have already mentioned; but in other cases it is due to failing power in the muscular wall.

The peculiar kind of respiration, often spoken of as *Cheyne-Stokes' breathing*, in which inspiration, beginning feebly, gradually increases in depth and loudness until all the muscles of inspiration are thrown into violent action, and then gradually decreasing in violence is followed by a period of complete apnœa, is a phenomenon which has never been satisfactorily explained, but which has, as one of the conditions essential to its occurrence, failing ventricular contraction.

Over-distension of the cardiac cavities, of which I have already said so much, though often due to narrowing or insufficiency of the aortic or mitral valves, or to temporary causes rendering either the pulmonary or systemic circulation difficult, may be really due to failing power in the muscular tissue of the heart. Hæmoptysis, pulmonary apoplexy, and congestion of the parenchyma of the lung, come therefore to be at times signs of failing ventricle, and so does enlargement of the liver and albuminuria;

and it is a clinical fact, which is difficult to explain, that sometimes we have a greatly enlarged liver and œdematous legs without signs of pulmonary engorgement. In the rare instances (commonly cases of old emphysema) in which the cardiac trouble chiefly consists of dilated right ventricle, we can understand the presence of portal over-fulness without pulmonary engorgement; but even in cases of valvular disease on the left side, where one would consider the lungs lay necessarily in the course of the backward stream, we sometimes find the parts behind them mechanically distended, although the lungs are free from congestion. Enlargement of the liver is seldom absent when the right heart is over-full, and when it is not swollen, we may usually conclude that owing to alcoholic excess its capsule is so thickened as to oppose distension.

Finally, the important symptom, *cardiac dropsy*, may generally be regarded as having as one of the conditions of its occurrence failing propelling power in the left ventricle. This anasarca comes early in some cases, and in others, apparently similar, does not trouble the patient until he has been a long time ill. The state of the arteries, the condition of the veins and lymphatics, the healthiness or unhealthiness of the blood, the activity of the kidneys, and the influence of the nervous system, may all have an effect in precipitating or postponing effusion into the cellular tissue and serous sacs, but still inefficient ventricular contraction, both because it fails to send a sufficient stream into the arteries and retards the onward current in the veins, must rank as the chief condition necessary for the production of cardiac dropsy.

While we thus give due value to physical signs and to symptoms in revealing the force of the heart, we must not leave the *pulse* out of consideration, remembering, however, that some people have small arteries and a poor pulse though their hearts may be sound, and, on the other hand, that the tortuous and thickened vessels of the aged may give the impression of a strength in the heart which a further examination does not verify.

Having, from the presence of some of the above symptoms and signs, satisfied ourselves that our patient's distress is mainly due to inefficient ventricular contraction, we seek to relieve him by the use of cardiac stimulants and tonics.

(To be continued.)

A NEW ARTIFICIAL EYE-BALL.

BY W. CHARNLEY, M.D., M.C.

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SOME years ago Mr. Mules, of Manchester, devised a new operation to take the place of enucleation of the eye-ball. The operation consisted in cutting out the cornea, so obtaining a circular opening, making short lateral horizontal cuts in the sclera, this converting the circular into a button-shaped opening, eviscerating the contents of the eye, leaving only the sclera, and finally putting a hollow glass globe into the empty sclera and stitching down the anterior opening on the globe. In this way there was obtained a solid spherical stump of the same size as the original ball, and with all the original muscles attached to it, and therefore capable of all the natural movements of the eye.

This operation was practised by many oculists when it was first suggested by Mr. Mules, but has I believe been abandoned by most. The reasons for this have been—

1. There was considerable, often intense pain, and febrile re-action after the operation, sometimes lasting for days.
2. The operation sometimes failed from the stitches giving way and the glass globe dropping out.
3. Many operators were haunted by the fear of sympathetic ophthalmia.

There may have been other reasons prevailing with other oculists, but these were the arguments I have collected against the operation from my own experience and that of my friends.

I myself tried the operation in a considerable number of cases, and ended by almost abandoning it on account of the pain and fever it caused, and the large percentage of failures from the stitches giving way. On the other hand, Mr. Budenell Curtis is an earnest advocate of the operation, or at least was when last I heard from him on the subject.

Lately my thoughts have been turned on the operation again ; and with modifications in the dressing I have had so much more success that I am performing it in every case that I think at all suitable. I believe I erred before in having too heavy and complicated dressings. Now I use corrosive sublimate lotion (1-5000) for irrigation during the operation, and dress with sal alembroth wool and gauze. The instruments and hands of nurses and surgeon are carefully aseptically with carbolic acid. I will describe shortly my present procedure, which does not essentially differ from that of Mr. Mules.

The cornea is cleanly separated from the sclerotic by a sharp Beer's knife, then a lateral opening is made with scissors on each side, so that a button-shaped opening is got.

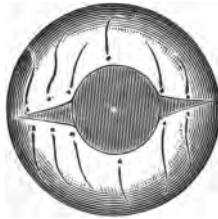


Fig. 1.

All the contents of the sclera are then cleaned out with a Mules' scoop ; pledgets of cotton wool are put into the cavity of the sclera, and pressure used till all bleeding stops, and the sclerotic is seen to be quite white. Sutures are then put in through the sclera and drawn together and the dressing applied. Twenty-four hours after the operation there is much chemosis of the conjunctiva, and redness and swelling of the lids, generally at that epoch at its highest. This gradually subsides in a few days.

In one case I had recently, unfortunately, or perhaps, I may say fortunately, the wound failed to completely unite. The lateral cuts in the sclera united well, but the corneal stitches gave way. This often happens, as might be expected, when it is considered that the sides of the cuts in the sclera have been previously in apposition, whereas the corneal wound is formed by the approximation along a straight line of the half-circular upper and lower margins of the cornea. This of course leads to puckering and imperfect apposition. At any rate, in the case I mention the corneal stitches gave way, and the wound gaped circularly to about the size of a normal cornea. The glass ball remained *in situ*, shining through the opening. The eye gradually got quiet, and now the patient has an artificial eye-ball which is very presentable without the use of an artificial eye in the usual sense (that is, an enamelled shell) at all.

The sclera is quite white and the glass ball takes the place of the cornea, and at a little distance cannot be distinguished from it. This accident led me to aim at getting the same result from the first by not uniting the margins of the cornea at all, but simply stitching the edges of the scleral wounds together, as the accompanying sketch shews.



Fig. 2.

I have at present tried this in only one case, but that succeeded and promises well for success in other cases.

It then occurred to me that an imitation of the cornea and iris might be painted on the glass ball, and I have had this done in oil colours, but have not yet inserted such an eye into a sclera. The painting must be done a few days before the operation, and an obvious difficulty is that the painted part of

the glass ball might not be got to appear in the circular opening ; or, if once got in that position, might rotate out of it again.

I had it in my mind to have the balls blown with a spur behind, which should fit into the opening through which the optic nerve enters the eye, the nerve having been previously punched out.

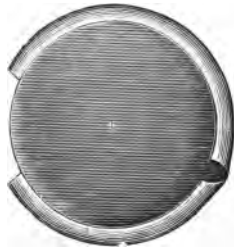


Fig. 3.

This would effectually keep the ball fixed.

Mr. Lawson Tait, to whom I was mentioning this matter the other day, made the valuable suggestion that the balls should be blown with a raised edge fitting into the corneal opening, as the sketch shews.

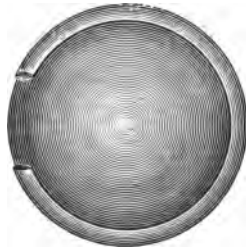


Fig. 4.

This would have the additional advantage that it would bring the surface of the glass ball level with the surface of the sclera, and not leave a depression as in fig. 3.

I am having glass balls made in both shapes, and if I am successful in fixing them in the sclera, will then have painted or enamelled on them a representation of the normal iris and pupil. Whether this be successful or not, I think the device of leaving the corneal opening, and so getting a fair appearance

of a natural eye without the necessity of wearing a troublesome and expensive shell on the top, is a valuable one. If it is wished, a shell may be worn over this, just as if an original Mules' operation had been done. In either case, the patient has the advantage of having a movable eye, and of *not* having the sinking in of the upper lid which is generally so disfiguring after enucleation.

P.S.—Since the above went to press I have adopted what I think is a decided improvement in the making of the glass globes. These are blown as usual, and on them is fixed by cement a plate of enamel of the width and thickness of the cornea, having on it a representation of the iris and pupil. This plate fits into the circular opening at the anterior pole of the sclera, and so keeps the glass globe from rotating.

POST-GRADUATE LECTURES ON THE PATHOLOGY OF TUBERCULOSIS.

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(Concluded from page 349, Vol. XXX.)

THE MORBID ANATOMY AND HISTOLOGY OF PULMONARY TUBERCULAR PHTHISIS.

THE next and perhaps the commonest variety of tubercular phthisis is that where the disease has been *mainly the result of the inhalation of the virus in small but repeated doses, distributed at various spots in the lung relatively speaking wide apart from one another.* The disease may be an extension from a primary caseous focus in the lung itself, or from caseous bronchial

glands, *with which one or more larger bronchi happen to be in direct communication.* Into the terminal ramifications of these bronchi the virus is *aspirated*, and originates, more or less simultaneously, a number of individually distinct and independent focal lesions, which at first, on account of the smallness of their size and their general naked-eye appearances, resemble very much miliary tubercles. If, however, we accept the pathological anatomist's definition of miliary tubercle, we shall find them possessing a totally different structure.

Of course it is only in the earlier stages, when the disease is localised at the apex or in the upper lobe of the lung, that we can satisfactorily study the development and the anatomical characters of these lesions; for at a later stage, when the disease has perhaps been steadily progressing for a year or two, the anatomical changes become so varied and complex that the most experienced pathologist will, in some cases, rather leave it an open question than commit himself to a definite opinion as to the mode in which the disease originated, as well as to the precise nature of the initial lesions. In some of these advanced cases there are certain leading features that will guide him in forming an opinion. For instance, there may be evidences of the *uninterrupted progress* of the disease, and then an examination of the more recent lesions in the lung least affected is, I think, a fair criterion as to the character of the primary pathological changes. In a few cases, where death was due to accidental or other causes, I happened to meet with this variety of phthisis in the early stages of its development, and I found at the apex of one lung, or scattered throughout a great part of the upper lobe, a number of disseminated tubercular lesions which I took to be miliary tubercles, and so regarded the affection as *a localised miliary tuberculosis*. In three of the cases, however, I failed to discover any trace whatever of a primary caseous focus to fit in with the generally accepted theory of the etiology of the disease, and I therefore kept material from all three for microscopical investigation, the result of which shewed me that the greater number of the lesions were *anatomically*

speaking *not miliary tubercle*, though, from an etiological point of view, they were all "*tubercular*," since they all contained tubercle bacilli. Another point of importance which is clearly illustrated in these cases is that the variety of tubercular phthisis we are now considering can, in the absence of an old caseous focus in connection with the bronchial tract, arise as the direct consequence of the inhalation of the bacilli from without. We may suppose the pre-existence of excoriations or injuries of the bronchial mucous membrane; but, whether this be so or not, the disease begins at different points in a certain area of lung tissue as small foci of tubercular broncho-pneumonia. Concerning the anatomical characters of the lesions in these earlier cases:—

1. The discrete are all small, though not all of the same size. The larger vary from 1-20th to 1-10th of an inch in diameter. All from 1-12th of an inch in diameter and upwards are distinctly opaque and caseous in the centre. When viewed through an ordinary or simple magnifying glass, pin-hole apertures are seen situated often to one side of them, and these under a low power of the microscope are found to be sections of small bronchi. In the smaller foci, 1-20th to 1-25th of an inch or so in diameter, the caseous centre corresponds with a bronchiole or its infundibular expansion, which is filled with caseous material; the rest of it consists of a zone of imperfect nucleated fibrous tissue, and then outside this a number of alveoli filled with a cellular caseous exudation. A prominent feature is the extensive thickening of the inter-alveolar septa by an adenoid cellular tissue. Now the smallest of all, namely, those measuring from 1-100th to 1-50th of an inch, are greyish but homogeneous and semi-translucent points, which are disposed in the adventitia of blood vessels and at the margins of the interlobular septa. They are anatomically true tubercles (reticular giant-celled), and are evidently of recent and secondary origin, developing along the course of the lymphatics in the perivascular and interlobular tissue. Some of the larger ones of this variety are found immediately beneath the pleura, and

occasionally in the connective tissue around larger bronchi (secondary lymphatic tubercle).

2. The coalescent nodules:—These measure from 1-8th to 1-4th of an inch in diameter, and are simply made up of groups of the smaller broncho-pneumonic foci welded together by a small amount of richly-nucleated fibrous tissue. The largest, situated at the apex, are about the size of a split pea. They are solid caseous masses, partially encapsuled by fibrous tissue. The pulmonary tissue between all these various scattered foci is quite crepitant and in a fairly normal condition in this early stage, and the pleura not thickened, except at the extreme apex over the caseous nodules.

Now in no part of the affected lung could I find those patches of pneumonic infiltration as large as a walnut in size, and presenting on section the uniform greyish red granular aspect such as were described in caseous pneumonic phthisis. Neither was the stage of cavity formation reached in these cases. In two there was very early apical infiltration in the other lung, whilst in the third the extent of the disease was nearly the same in both.

So far, then, in this early stage it is not a difficult matter to follow out the origin and evolution of the morbid process. Most pathological histologists are agreed in fixing the place of its commencement in a bronchiole, or in its infundibular expansion into the alveoli connected with it. Here the tubercle bacilli settle, and, as a result of their irritating influence, proliferative changes are set up successively at different points in the wall of the bronchiole. While fresh ones are developing, the older ones are caseating; and thus the lumen of the bronchiole or its infundibulum becomes blocked by a caseous mass. By the peripheral extension of the proliferative process to a number of the alveoli around, a nodule of broncho-pneumonia is formed. But the caseous degenerative changes follow in the same order. The wall of the bronchiole and the alveoli immediately contiguous become so affected by it that only the bare outlines of the framework remain. Around this caseous part is a more or

less broad zone, where the marked thickening of the alveolar walls by a kind of adenoid growth has become so blended with the cellular exudation within them that it is only in good preparations one can differentiate the *inter* from the *intra* alveolar changes that seem to go hand in hand with each other. And it is in the indeterminate character of this zone that one may discern a tendency to the limitation of the process, but it is at the most an imperfect one.

THE MODES OF EXTENSION OF THE DISEASE.

You will observe that the primary distribution of the disease in the scattered nodules of broncho-pneumonia around the terminal branchings of the bronchi is essentially a peripheral one. Its further extension in the lung from each of these foci takes place *by continuity of tissue* in two ways. 1. Inwards or backwards from the bronchioles towards the larger branches distributed to individual lobules (intra-lobular bronchi), and then again from these by a repetition of the aspiration of the virus peripherally to *other* bronchioles or infundibular terminations within the same lobule. In this way, by an alternate centrifugal and centripetal distribution an entire lobule may become involved. 2. By the development of secondary interstitial tubercles following the course of the lymphatics in the perivascular and perilobular connective tissue, but especially in the adventitia of the small arteries and veins accompanying the bronchial ramifications, so that we find some of these blood vessels thickened and obliterated. These perivascular and perilymphangitic lesions are the true miliary interstitial tubercles, and are usually found associated with chronic tubercular phthisis. Their development is slow and gradual, but to their effects in obliterating the vessels must be attributed in some measure the necrosis and disintegration of the interstitial tissue in the midst of which necrotic or caseous masses are found.

Now in such a continual extension of the disease within limited areas of pulmonary tissue it is obvious that these individual foci, by their coalescence, may form here and there a considerable

patch of tuberculisation around a bronchus of a fairly large size. Its walls have already become thickened and weakened by inflammatory cell infiltration, so that it is dilated, and eventually some part of it becomes involved in the tissue disintegration going on in and around it until it comes into direct communication with the softened caseous focus. In other words, a cavity is formed containing infective material which mingles with the catarrhal secretion in the bronchus, and is, in part, expectorated with the muco-purulent sputum. In this elimination of the caseous material lies another danger, viz., that of a wider infection of distant parts of the lung (auto-infection). The infective sputum is not entirely got rid of; part of it may be arrested in another comparatively large branch of the bronchial tree near its root, whence it is liable to become again aspirated into and distributed to some other distant part of the lung which, up to this time, was free from the disease. In a similar manner the other lung may become affected by sputum reaching its bronchi and being aspirated into it. Such is the picture I have attempted to draw in order to explain the anatomical progress of a case of *chronic tubercular broncho-pneumonia*.

The pleura becomes implicated early by extension from affected lobules situated immediately beneath it, and also through the anastomosis of its lymphatic apparatus with the lymphatics in the interlobular septa. In this way a chronic pleurisy is set up, resulting in the thickening and adhesion of the pleura, which is constantly associated with chronic phthisis. In some cases you will find even evidences of a recent pleurisy (fibrinous exudation), distributed in patches and engrafted upon the chronic. Such patches will explain the pleuritic friction sounds frequently heard in phthisis. If we bear in mind the reactive inflammatory changes implicating chiefly the interstitial tissue, which in some degree always accompany the tubercular process, we can now interpret and follow the varied anatomical changes seen on the *post mortem* table in the lungs in these advanced and chronic cases.

We find one lung affected almost throughout its extent. Its

pleura is thickened and adherent, it is more or less riddled with cavities, large or small, some of which are simply dilated bronchi, others the result of the softening and breaking down of coalescent patches of tubercular infiltration. There is a general thickening of the fibrous framework of the lung, so that the lung appears intersected in various directions with bands of newly formed connective tissue, given off from the thickened pleura, and anastomosing with the peribronchial and perivascular fibrous tissue. One feature about this tissue is that it is never firm and white, or cartilaginous in consistence like that seen in cases of chronic fibroid phthisis of long duration. It looks swollen, vascular, and succulent, pinkish grey in colour, and on microscopic examination the cell elements predominate largely over the fibrous. It is more an inflammatory cell proliferation and infiltration of the tissue in which the process of organisation is in quite an early stage. Hence the lung is seldom much contracted in bulk. Should part of it be free, and should there be a considerable amount of serous fluid in the pleural cavity, this free portion may be collapsed from pressure of the fluid. I have several times seen this condition. As to the other lung, its upper lobe or a great part of it may be quite as extensively affected. But wherever any crepitant lung is left, it is never entirely free from disease. Usually it is the seat of discrete or conglomerate grey tubercles, the tendency of which, however, is not to caseate but to undergo a fibroid transformation (interstitial tubercle or tubercular perilymphangitis).

Occasionally this variety of phthisis, after its usual insidious onset, takes on unexpectedly an acute course, and death ensues within six or eight weeks after the change in the clinical aspect of the case has set in, with a more or less sudden aggravation of the symptoms and physical signs. On referring to my notes of a few cases of this kind illustrating the sudden change in the type of the disease, I find that two of the patients had gone through acute attacks of pulmonary inflammation (bronchitis and pneumonia) twelve or eighteen months before the symptoms of phthisis became manifest. Although both patients

asserted that they made a good recovery and enjoyed an interval of comparatively good health before the phthisis developed, it is quite possible that the acute attacks of bronchitis in the one, and of pneumonia with acute pleurisy in the other case, laid in some measure the foundation for the development of the phthisis, for neither gave the slightest evidence of hereditary taint. These patients attributed the exacerbation of their symptoms to "a fresh cold on the chest." In other patients there was a definite family history of tubercular disease.

On *post mortem* examination, the fatal element appeared to be the development of an acute pneumonia, which lighted up the tuberculosis into fresh activity; for in two of the cases I detected tubercles in the liver, spleen, and kidneys, and to some extent in the peritoneum. Certainly they were very sparse in the viscera, and not readily seen.

Although no cerebral symptoms were noted, I examined the brain carefully in all the cases for tubercles, but with negative results. As regards the morbid anatomy of the pulmonary lesions, the lungs on section in the two cases above mentioned presented more or less extensive tracts of a recent red and greyish red hepatisation, midst which discrete and racemose groups of soft grey tubercle were imbedded. In the upper lobe of the most affected lung the tubercles and the pneumonic infiltration around them were softening and breaking down to form small cavities. This lobe was bound down to the thoracic wall for the greater part of its extent, but the remainder of the lung was free and the pleura extensively affected with acute fibrinous inflammation, the layer of exudation on it being quite thick in places like that in acute pleuro-pneumonia. But on scraping it away, the pleura was distinctly beset here and there with miliary tubercles. The interest of these cases is their position on the border-land of acute general tuberculosis. I should mention that tubercle bacilli were very numerous, especially in the pneumonic parts immediately around the tubercles.

3. The last variety of phthisis, with which I shall conclude

my description, is the most chronic form of all, viz, fibroid phthisis.

Cases in which it is found may be conveniently classed into two groups.

1. Those where the fibroid changes have succeeded to the tubercular. At the close of the last lecture I cited a case of this kind where the transition was marked. But we may also meet with cases where the fibroid changes are still further advanced. Large multilocular or sacculated cavities are then found at both apices, and the entire lung on one side may be considerably contracted by fibroid induration. Dilated bronchi with dense fibroid walls are also seen, and in the indurated tissue between them a few caseous or cretaceous deposits are found as the only vestiges of the tubercular affection. In the other lung, that may be less affected, a certain amount of aerated pulmonary tissue is left, but even this is affected with patches of nodular induration, which consist microscopically of closely aggregated nodules of broncho-pneumonia that have undergone marked fibroid induration. Thus the small caseous centre in each corresponds with the lumen of a bronchiole, and is surrounded by a broad zone of dense fibro-nucleated and pigmented connective tissue, through the medium of which the individual nodules become contiguous with one another. In other parts they are disposed in more isolated and smaller groups.

It would seem that most of the caseous material had been eliminated in these cases. Nevertheless the presence of these large cavities is strong presumptive evidence of the tubercular character of the primary mischief.

In another class of cases belonging to this group the tuberculosis is obsolete, and so come upon accidentally. If the infiltrated patch is situated near the surface, the pleura over it is usually depressed by a stellar cicatrix. On making a section through it, one finds small caseous foci circumscribed by indurated and pigmented fibroid tissue. We may even discover a small cavity with dense fibroid walls, and scattered immediately around it little caseous masses or fibroid tubercles.

In the case of a man who died of uræmia from granular kidney, I found an old encapsuled caseous and cretaceous node about the size of a walnut at the apex of the left lung; and spreading from and around it were a number of slaty-grey miliary tubercles, isolated or in small groups. Microscopically some were nodules of caseo-fibroid bronchitis or peribronchitis, others pretty specimens of the giant-celled tubercle. I do not remember to have seen a more exquisite example of a secondary localised miliary tuberculosis around an old caseous focus than that presented in the above case. In two others the tubercular disease was definitely limited to the pleura, which was thickened and studded all over with miliary granulations (anatomically giant-celled tubercle). Such instances as these of latent and obsolescent tubercular disease of the lung occur much more frequently than is generally believed.

2. In the next class of cases the pulmonary affection is primarily non-tubercular. It is, in fact, a chronic interstitial pneumonia, described in the text-books as cirrhosis or fibroid induration of the lung; and it arises out of a number of morbid conditions affecting the lung, of which the following may be enumerated as the chief:—

a. From a chronic pleurisy as a pleurogenic interstitial pneumonia.

b. As the termination of an unresolved lobar and lobular pneumonia.

c. From chronic bronchial catarrh (winter cough).

d. As the result of the inhalation of dust particles of various kinds, setting up chronic peri-bronchitis and lymphangitis. The diseases belonging to this group are classed together under the term pneumono-konioses, and include miners', stone-masons', and grinders' phthisis.

e. Lastly, the late Dr. Corrigan, of Dublin, described a primary or idiopathic form of interstitial pneumonia, with which I am not as yet practically acquainted.

Now it is quite possible for any of the cases enumerated in the above groups to become tubercular at some period during

the progress of the disease by infection with the tubercular virus. In fact, it is this liability which constitutes the danger in these cases, for the establishment of tubercular disease is often quickly followed by a fatal termination. As you are aware, diabetics are not infrequently affected by a caseous pneumonic phthisis, which Dreschfeld and others believe to be non-bacillary. That it may be so at its commencement is quite possible, but in every case I have examined so far, I have succeeded in finding tubercle bacilli.

This concludes the description of the morbid anatomy of the lungs in the various forms of pulmonary tuberculosis.

I have now a few facts to relate in connection with the concomitant lesions affecting other viscera, for without some reference to them I should feel that these lectures on the pathology of phthisis were incomplete.

CONDITION OF THE HEART IN PHTHISIS.

Size.—In 77 per cent. of the total cases the heart was described in the *post mortem* records as “smaller than normal,” and it was only in chronic fibroid phthisis with bronchiectasis that an enlargement was noted with some degree of hypertrophy and dilatation of the right side.

A small heart is usually mentioned in text-books as one of the predisposing causes of phthisis, and it is a noteworthy fact that, notwithstanding the morbid changes in the lungs, it remains small in the majority of cases. So far as my acquaintance with the literature of the subject goes, I do not remember to have come across any discussion or explanation of this fact. I need hardly remind you that, next to pronounced mitral stenosis, the most fruitful causes of right-sided hypertrophy and dilatation are emphysema, chronic bronchitis with bronchiectasis, and fibroid changes in the lung; and hence it is interesting to note that a certain degree of dilatation was associated with some of the cases of fibroid phthisis.

It is however in the acute, sub-acute, and the less chronic varieties of phthisis that the heart remains small, or even under-

goes atrophy to some extent. Possibly it is to be referred partly to the quiescent mode of life which patients suffering from phthisis are compelled to lead from the time the symptoms become troublesome, so that no extra stress is thrown on the heart. Then, again, the amount of blood must be relatively diminished, as indicated by the general anæmic condition of the patient and the emaciation that is taking place. Thus the heart gradually accommodates itself to the needs of the organism generally, and the right side to the alterations of the pulmonary circulation in particular. In a case of chronic bronchitis and emphysema, or of fibroid phthisis, the patient may be able to go on with his employment for some time before compensation fails and œdema begins to shew itself; while in tubercular phthisis the patient soon becomes totally unfit to follow his employment on account of his febrile condition and general malaise. It is not usual to see signs of œdema in phthisis except perhaps in the last stages, when the kidneys are usually affected.

Cavities and Valves.—The right side was generally engorged with blood-clot, most commonly with *post mortem* or “agony” clot; but in a few cases *ante mortem* thrombus was found extending into the pulmonary artery.

Valves.—In two cases there was thickening of the mitral with stenosis of the orifice (rheumatic in one and probably congenital in the other case). In two other cases recent acute verrucose endocarditis of the aortic and mitral valves.

Pericarditis.—Tubercular and acute in two cases with seropurulent exudation in the sac; chronic with pericardial adhesions in three cases. In two of these the heart was displaced by the adhesion of the pericardium with the thickened pleura of a contracted left lung.

Cardiac Muscle.—Described as looking fairly normal in 50 per cent.; brown atrophy specially noted in 30 per cent. In the remaining 20 per cent. it was noted as soft, pale, and friable, with a distinct yellowish mottling, and a microscopic examination of the fresh muscle, which was made in several of

these cases, shewed marked granular and fatty changes in groups of muscle fibres (patchy degeneration).

Condition of the Kidneys.—Anatomical changes, though for the most part slight, are frequent in the kidneys in phthisis.

Excluding cases of tubercular pyelonephritis, of lardaceous disease, and those advanced cases of granular contracted kidney which constituted independent affections, the following analysis of the remaining cases is of some interest.

a. Kidneys swollen, but capsules strip well; cortex increased, pale, semi-translucent, with greyish yellow mottling = chronic parenchymatous nephritis; six slight cases and two marked where the kidneys were early large white. Microscope shewed the changes to be chiefly intra-tubular, viz., cloudy swelling and granulo-fatty degeneration of the epithelium of convoluted tubules.

b. Kidneys enlarged, capsules partially adherent (here and there); cortex swollen, of a pale yellowish grey, but mottled with hyperæmia = sub-acute or chronic diffuse nephritis (interstitial and parenchymatous changes; eight slight cases, two marked, in which sub-acute glomerulitis was a conspicuous change.

c. Kidneys smaller than normal, capsules a little thickened and more or less universally though slightly adherent, surfaces finely granular; cortex narrowed in places and uneven in outline = slight interstitial nephritis; seven cases. Microscopical examination of some of the kidneys taken from groups *b* and *c* shewed well-marked interstitial changes, *i.e.*, small-celled infiltration of the stroma around glomeruli and around the arteries and veins in the labyrinth. These changes were quite patchy in distribution throughout the cortex; but there was *no very pronounced thickening* of the small arteries, such as is characteristic of the arterio-sclerotic or red granular kidney. Here and there changes were found affecting the glomeruli, such as intra-capsular cell proliferation and exudation, and slight pericapsular thickening. A few were undergoing hyaline fibroid change.

These were evidently slight cases of interstitial nephritis, secondary to the pulmonary affection.

Miliary tubercles were found associated with the nephritis in some cases.

Liver.—The most constant and prominent change in all cases was "fatty infiltration," fatty liver. *Where the tuberculosis was localised in the lungs* I rarely met with amyloid infiltration, although I carefully looked for it in every case where I suspected it might be present. On microscopic examination, scattered miliary tubercles are more frequent than one might suppose, for unless they are present in the serous capsule they escape detection by the naked eye. Perihepatitis was found in the cases where the peritoneum was the seat of tubercular infiltration, and also in those where it was localised to the pleura, whence it had apparently spread to the peritoneal covering of the liver through the diaphragm. Exceptionally the liver was found to be slightly granular and cirrhotic. In one instance a latent tubercular disease of the lung was found associated with a typical case of cirrhosis of the liver with ascites.

Stomach.—Dyspeptic troubles are often prominent symptoms associated with phthisis. I have not myself made any histological examination of the stomach of phthisical patients, but one of the most recent contributions to this important subject is from the pen of Dr. Schwalbe, who made a careful examination of the stomach in twenty-five cases of phthisis, and found important changes in the mucous membrane in twenty out of the total number, viz., interstitial gastritis in fifteen, parenchymatous degeneration with dilatation of the tubules in four, and amyloid changes in one case ⁴⁷

Intestine.—Tubercular disease, in the form either of distinct ulceration or infiltration with miliary tubercles, was noted in

⁴⁷ "Die Gastritis der Phthisiker vom pathologisch-anatomischen standpunkte." Virch. Archiv. Bd. 117, Heft 2. See also yearly retrospect, *British Medical Journal*, December 28th, 1889, pp. 1, 447.

54 per cent. of the cases; of the remainder, reference to the intestine was omitted in a few and disease noted as absent in the others.

Another note of interest is the relative frequency of the right and left lung as the one in which the disease was most advanced, and therefore the one in which the disease first appeared. Left lung in 51 per cent., right in 49 per cent. of the cases, or practically equal.

Lardaceous disease was found more or less generalised, mainly in those cases where the pulmonary affection was associated with tubercular disease in other parts of the body, but especially with bone disease, in 25 per cent. of the cases.

Complications.—Pleurisy frequent, but pneumothorax and pyo-pneumothorax in only four cases out of the total number.

Death directly from hæmoptysis in the later stages of the disease occurred in three cases only.

Concluding Remarks.—If we review our subject in the light of the great advances that have been made in the pathology not of tuberculosis only, but also in the pathology of infective micro-parasitic diseases generally, much less importance must be ascribed to the characters of the anatomical changes as distinguishing features of the disease than to the presence of the bacillus, *which is the only reliable test of what is tubercle*. Even if we accept the older views of pathological anatomists—that the demonstration of a definite structure is the *sine quâ non* for the proof of tubercle, and if this structure is the *so-called reticular giant-celled tubercle* of Schüppel and others—then I must admit that my experience leads me to point out its relatively rare occurrence in the lung compared with the generalised inflammatory lesions of a totally different structure. Secondly, when it does occur it is far more frequently as a secondary than as a primary event. We have seen that as a primary lesion it occurs in some cases of acute miliary tuberculosis, but that it is nearly always secondary in chronic tubercular phthisis, and is mingled with other inflammatory formations. Then, again, the exclusiveness of this anatomical distinction of tubercle is broken

down by the fact that almost identical structural formations are found in other diseases—in syphilis, in ordinary granulation tissue—and as the result of the presence of other parasites, such as actinomycosis, and strongylus in the dog. Even if we regard as anatomically true tubercles those minute foci of cell accumulation which develop in the wall of the bronchioles as the initial step in tubercular bronchitis and broncho-pneumonia, we seldom if ever meet with them in the perfection of their development as giant-celled systems. I have often seen them in the sub-epithelial tissue bulging into the lumen of the bronchus simply as a mass of cells, but never yet seen that remarkable differentiation of structure so beautifully depicted in the illustrations in pathological text-books. I may say that out of many hundred slides I have only a few where this remarkable differentiation is typically shewn in the so-called true miliary tubercles, and I keep them as treasures and relics of the teaching of days gone by.

In the bronchial wall they degenerate as quickly as they grow, and at once excite an inflammation around them—an inflammation distinctly pneumonic in type—which I regard as *inseparable* from the process as a whole. We have had abundant proof of the varied, and at the same time exceedingly interesting characters of the lesions making up the sum total of pulmonary phthisis, and have seen that *in the main* they are essentially inflammatory in character, and either specific or simple. *The specific are caused directly by the bacilli*, and, according to their anatomical form, we may designate them bronchitic or peribronchitic, pneumonic—either broncho or lobular—or interstitial; but at the same time we should qualify them by the adjective “*tubercular*” when tubercle bacilli are present in them. So long as they are tubercular, I really cannot see what objection there is in calling them “*large soft grey*” and “*yellow tubercle*” (as Dr. Green still does in the latest edition of his text-book), leaving the term “*firm grey miliary tubercle*”⁴⁸ to distinguish the reticular giant-celled formation. The simple inflammatory lesions are mainly represented by the

reactive or reparative changes taking place in the connective tissue framework. The explanation why in some cases we get a rapidly spreading acute lobular pneumonia and in others a chronic disseminated broncho-pneumonia, is to be referred, as I have previously mentioned, to the amount and intensity of the virus propagated in the lung at a given time.

Lastly, as to the mode of origin of tubercular phthisis and the influence of hereditary predisposition, I believe that in the majority of cases it is primary by way of the respiratory tract in individuals possessing a strong hereditary taint. And on this point I cannot agree either with Cornet, who would blot out "constitutional predisposition" from amongst the etiological factors, or with Baumgarten, who believes that it means an actual transference of the virus, and that nearly all cases of phthisis start from some latent focus indirectly through the lymphatic system.

With regard to the pathological chemistry of the disease, which is now an all-absorbing question, I have referred to the experiments of Maffucci with the sterilised chemical products of the growth of the bacillus in nutrient media; and I must not omit to refer to important experimental investigations with the chemical extract from phthisical sputum conducted by Dr. Philip of Edinburgh, who is already a well-known clinical authority on pulmonary diseases,⁴⁹ as well worthy of your perusal.

⁴⁸ "No doubt the term 'tubercle' is an unfortunate one; but it has been handed down from one authority to another, and we have become so accustomed to it, that it would be difficult to replace it by any other word. Moreover, since Koch's discovery its signification is not limited to structural detail, but includes now a distinct reference to the organism causing the disease."

⁴⁹ "Pulmonary Tuberculosis." By R. W. Philip, M.A., M.D., F.R.S.E. Edinburgh and London: Young J. Pentland. 1891

PERISCOPE.

SURGERY.

BY WILLIAM F. HASLAM, F.R.C.S.

On the Results of Treatment of Simple Fracture of the Shaft of the Femur.—Stephen Smith, M.D., of New York (*Medical News*, September 26th, 1891).

This article is drawn up in accordance with a minute of the American Surgical Association, to the effect that—"Whereas, in the treatment of fractures of the shaft of the femur the question often arises as to what is a satisfactory result in a given case, therefore be it resolved that a committee be appointed by the president to report at the next meeting of the association what in their judgment, under the methods of treatment now employed, should be considered as satisfactory results." In order to elicit from members an opinion on this point, the following question was issued to each:—"What should be considered as a satisfactory result (other than perfect union) in the treatment of a simple fracture of the shaft of the femur?" the question being so framed as to elicit the answer that would be required in court. Dr. Smith's report is based on replies from thirty-four members, and, after each point is discussed, concludes as follows.

"A satisfactory result has been obtained in the treatment of fracture of the shaft of the femur when—

1. "Firm bony union exists.
2. "The long axis of the lower fragment is either directly continuous with that of the upper fragment, or the axes are on nearly parallel lines, thus preventing angular deformity.
3. "The anterior surface of the lower fragment maintains nearly its normal relation to the plane of the upper fragment, thus preventing undue deviation of the foot from its normal position.

4. "The length of the limb is either exactly equal to that of its fellow, or the degree of shortening falls within the limits found to exist in ninety per cent. of healthy limbs, viz., from one-eighth of an inch to one inch.

5. "Lameness, if present, is not due to more than one inch of shortening.

6. "The conditions attending the treatment prevent other results than those obtained."

A Case of Fracture of the Twelfth Dorsal Vertebra, followed by injury to the spinal and sympathetic nerve supply of the bowel in the region of the ileo-cæcal valve.—J. T. Eskridge, M.D., of Denver, Colorado (*Medical News*, October 10th, 1891)

The patient, a male aged 33, while at work on a large building, was struck by a cage full of bricks weighing about 2,000 lbs. This was passing a few feet above his head, when the rope broke and it fell, striking him on the head and carrying his head between his feet and bending the spine sharply backwards in the dorso-lumbar region. The rope by which the cage was suspended did not allow it to descend nearer the floor than about eighteen inches. The man was imprisoned between the cage and the floor only a few minutes, but when released he was unconscious, and remained so about half an hour. On regaining consciousness, his legs felt numb and were paralysed for two hours. On further examination, at the hospital, it was found that there were neither paralysis, sensations of numbness, nor loss of tactile sense in any part of the body or limbs. There was no incontinence of urine, but he was unable to expel the contents of the bladder. The back, at the junction of the dorsal and lumbar vertebræ, was arched backwards, and the soft tissues over the upper lumbar and four lower dorsal spines were greatly swollen and acutely sensitive to the touch. He complained of great pain in this portion of the back, and said that he had uncomfortable sensations in the lower portion of the abdomen. His temperature was 100.4°, pulse 100, respiration 24. The following morning he felt better, there was no pain in the back unless it was moved, and he evacuated his

bladder without assistance. This improvement continued for six days, when, contrary to orders, he partook freely of boiled cabbage. This set up vomiting, first of undigested food, and finally of dark coffee-ground-looking substance. He had great pain in the stomach and lower part of the abdomen, then irregular distension, especially from the umbilicus downwards and to the left. His strength rapidly failed, and he died collapsed the next morning.

On *post mortem* examination, the abdominal viscera were found to be healthy, except the lower portion of the ileum and the upper part of the colon. This portion of the bowel was enormously distended, almost black in colour, and accounted for the irregular distension that had been observed a few minutes before death. On slitting open the small intestines from above downward, nothing abnormal was found except a small quantity of fluid, coloured like that found in the stomach until the lower portion of the ileum was reached. At a point five inches above the ileo-cæcal valve the bowel was abruptly distended to its utmost, and the swollen mucous membrane seemed to completely occlude the calibre of the bowel at this point, so that none of the contents of the distended portion could reach the undistended portion. The distension reached from a point in the ileum five inches above the valve to a point in the colon six inches below the valve, and ended as abruptly as it had begun above, and the swollen mucous membrane below prevented the escape of the contents of the distended bowel into the gut below as effectually as was the case at the upper part of the distension. The mucous membrane and other coats of the dilated portion were almost black, soft, and everywhere infiltrated with dark fluid blood. This portion also contained about two quarts of dark semi-fluid blood. The bone lesion was found to involve the twelfth dorsal vertebra, the twelfth thoracic ganglia of the sympathetic were practically disorganised, the spinal cord was stretched and flattened by the falling together of the vertebræ, but neither it nor its membranes were congested or inflamed.

Dr. Eskridge suggests that the destruction of the twelfth ganglia caused the distension of the bowel, while irritation of the adjacent ones resulted in the contraction of the bowel on either side of this dilated area. The case is most interesting, as giving a clue to the distribution of the sympathetic to the intestines.

REPORTS OF SOCIETIES.

BIRMINGHAM AND MIDLAND COUNTIES BRANCH OF THE BRITISH MEDICAL ASSOCIATION.

The third ordinary meeting was held in the Library of the Medical Institute on Thursday, December 10th, the President, Dr. THOMAS SAVAGE, in the chair. There were twenty-six members present.

The minutes of the previous meeting were read, confirmed, and signed.

A communication was received from the Secretary of the Therapeutic Committee of the B.M.A. asking this Branch to appoint a Local Therapeutic Committee for the purpose of accurate therapeutic research.

Dr. Saundby attended as a deputation from the Therapeutic Committee, and explained the object of the proposal; and after some discussion, its further consideration was deferred to the next meeting.

The following gentlemen were elected members of the Branch:—Messrs. A. Hawley, C. G. Hutchinson, G. A. Ferraby, and W. Farncombe.

The following cases and specimens were shewn.

Mr. Vincent Jackson shewed a man, 62 years of age, upon whom he had operated for ruptured urethra some ten or twelve years ago. The urethra was sutured carefully, and healed with

rapidity. The man can pass a No. 12 bougie without difficulty, and has no trouble with micturition.

Mr. Barling shewed a man whose superficial femoral artery he had ligatured for a large popliteal aneurism. Before the operation no pulsation could be felt in either the anterior or posterior tibial arteries, and gangrene of the foot set in after ligature. High amputation, as is recommended by some authorities, was not performed, but when a good line of demarcation had formed, the dead parts were trimmed off on the lines of Chopart's amputation, leaving a very good stump.

Mr. Barling also shewed a man whose knee joint he had excised for bony ankylosis in a faulty position. Disease of an uncertain nature had existed in the joint for ten months. It had led to considerable shortening and to extreme flexion, but there had been no suppuration. The result of the operation was excellent.

Mr. Jordan Lloyd shewed a tongue removed from a man, aged 42 years, for recurrent papilloma. He had syphilis as a young man, and had suffered from tongue trouble for seven or eight years. A growth was removed at Guy's Hospital nearly two years since, and began to grow again almost at once. The operation was performed with scissors and ecraseur, and the man was making a good recovery.

Mr. Lloyd shewed a nævoid breast removed by excision from a girl baby aged 8 months. The tumour was as large as a split lemon, and was rapidly growing. The child was quickly recovering from the operation. Mr. Lloyd had three similar cases under his care at the present time, and was not satisfied with the electrolytic treatment of nævi at all.

Dr. E. N. Nason read a paper on "Some Cases of Acute Suppuration in Joints," of which the following is an abstract:—Traumatic suppuration; acute catarrhal; suppuration in rheumatic joint; infective; by extension from acute epiphysitis, etc. Illustrative cases; immediate and delayed treatment; continuous antiseptic irrigation simple and effective; general conclusions.

The paper was discussed by Mr. W. Thomas, Mr. Barling, Mr. Jordan Lloyd, Mr. Marsh, and Mr. Heaton; and Dr. Nason replied.

Mr. W. Thomas read a paper on "Lumbago and Sciatica," of which the following abstract gives an outline:—Vagueness of the terms, each being applied to a variety of pathological conditions; connection between the two affections shewn by the fact that the same individual often suffers from both, and that one is gradually followed by the other; a definition of lumbago; acute, sub-acute, and chronic lumbago; acute lumbago usually of traumatic origin; description of an acute attack; causes; pathology, remedies. Sciatica; its nature; causes; diagnosis; various remedies and apparent value of each.

The hour of the meeting having expired, no discussion was taken.

Mr. Lloyd gave notice that he would move a resolution at the next meeting limiting the time allowed for the reading of a paper, and also for subsequent speeches.

PATHOLOGICAL AND CLINICAL SECTION.

Meeting held on Friday, November 27th, 1891.

Chairman, A. H. CARTER, M.D., F.R.C.P.

Movable Kidney.—Mr. F. Marsh shewed a woman, æt. 33, with double movable, probably floating, kidney. She first noticed the condition five years ago. There was no apparent cause for the mobility. She had never been pregnant, neither had any illness nor lost flesh previously, nor did her occupation specially predispose. Two years ago nephrorrhaphy had been performed on the right side with some slight benefit. Both kidneys could be easily palpated, and could by changing the patient's position, be seen moving through a considerable radius beneath the abdominal parietes.

Cerebral Tumour.—Dr. Foxwell exhibited a married woman, age 37, who had right ptosis, paralysis of the left external rectus,

with paresis of both sides of the tongue and of the muscles distributed to the angles of the mouth, the right side being the more affected. There was nothing noteworthy in her history; she was temperate, and there was no evidence of syphilis. The history she gave of her present illness was as follows: In September, 1890, she attended at the eye infirmary, as she squinted with her *right* eye. This improved; but two months later, sickness and nausea arose and lasted several weeks. Later, for five weeks, she frequently suffered from short sharp headaches. In August, 1891, a tendency to fall forwards, with staggering, commenced. This symptom became very prominent, so that even turning gently over in bed gave her the sensation of shooting head-foremost out of it on to her face. But though she frequently fell, she never lost consciousness. Early in September, 1891, she was hoarse for several days, and then her speech altered, she developed a curious hesitating silent stammer, and her articulation became slurring; further, she often had the sensation of pins and needles on her right side.

On admission, her condition was as above stated, and no other abnormality was detected except deficiency of both patellar reflexes. There was no optic neuritis, and her mentality was good. Since admission—that is, for three weeks—she had been taking iodide of potassium, in 20-grain doses, thrice daily. There has been a marked improvement in all her symptoms except the squint.

Dr. Foxwell confessed his inability to make any certain diagnosis. A lesion involving the pons seemed to be the most natural explanation, and it was difficult to believe that this lesion was not multiple.

Typhoid Fever.—Dr. Carter related the notes of a case of typhoid fever, in which death had occurred from perforation of the bowel. Round worms had been passed, and moderate hæmorrhage had occurred during the progress of the case. The *post mortem* examination revealed a circumscribed peritonitis enclosing a cavity which occupied the pelvis and left iliac region,

and contained about a pint of semi-purulent fluid with faecal matter. This cavity communicated with the small intestine, by two perforations, situated a short distance above the ileo-cæcal valve. A small hydatid cyst was also found in the liver, which had given rise to no symptoms during life.

Ruptured Tubal Pregnancy.—*Mr. H. Langley Browne* shewed a ruptured tubal pregnancy, second month. F. P., æt. 31, was admitted into hospital on Oct. 22, 1891. She had been under the care of Drs. W. and E. Garman, of Wednesbury, who had diagnosed left tubal pregnancy. When seen on Friday, October 23rd, she had not menstruated for nearly two months, had had morning sickness and enlargement of breasts, and thought herself pregnant. She had suffered from inflammation of bowels twelve months ago, coming on suddenly after a period, and attended with acute pain. Was ill for two months. She married when 18, had borne two children, the last born when she was 21. Had been regular since without pain. On October 14th had sudden acute pain left side with sickness, pain lasting three days, and being of a forcing character. No tumour could be felt or seen on abdominal examination, but by bi-manual the uterus was found to be enlarged and fixed, and there was a distinct swelling on the left side of it.

On Sunday, October 25th, she was seized with very acute pain in the bowels and with marked collapse at about 12-30. At 2-30 the abdomen was opened. It was full of blood, and blood could be felt coming away from the left tube. A pair of long pressure forceps applied between the tube and the uterus stopped the bleeding and enabled the abdomen to be cleared out. Both tubes and ovaries were firmly adherent to the peritoneum covering the pelvic wall. The left tube was brought into view with some difficulty, and then the enlargement with rupture was distinctly seen. The tube and sac was transfixed, tied, and removed, the pressure forceps removed, and it was found that all bleeding had ceased. The abdomen was then carefully flushed, cleaned out, and closed, a Keith's tube being left in. There was no further hæmorrhage after

the operation, but the patient was bloodless and suffered greatly from shock. She became extremely restless, very sick, and died thirty hours after the operation.

Specimens.—Dr. Crooke read notes and shewed microscopic specimens from two cases of rapid cardiac failure.

MIDLAND MEDICAL SOCIETY.

Wednesday, November 25th, 1891.

Mr. BENNETT MAY, F.R.C.S., President, in the chair.

Mollusum Fibrosum.—Dr. Suckling shewed a woman, aged 70, who was covered with fibrous tumours varying in size, some pendulous, some sessile. The growths commenced thirty years ago, and fresh ones had continually appeared since. There was no hereditary history, and no cause for the disease could be elicited. None of the growths had ever disappeared spontaneously. A few of the growths had a comedo on the summit, and there was a large one growing from the mucous membrane of the hard palate. Some of the tumours were lobulated. The disease could be easily distinguished from multiple neuromata biformata, and from mollusum contagiosum.

Kolpo-hysterectomy.—Mr. Jordan Lloyd shewed a patient, 40 years of age, upon whom he had performed the operation of kolpo-hysterectomy for uterine cancer in May last. The tumour was epitheliomatous, affected the whole of the cervix, and had existed for six months. The operation was performed in the usual manner, the left broad ligament being clamped and the right one ligatured. Recovery was uninterrupted. She had gained more than a stone in weight, and her skin had become ruddy and firm again since the operation. She was free from pain, and able to do her house-work as well as ever.

Tumour.—Mr. Jordan Lloyd also shewed a large myxomatous tumour removed from the right popliteal space of a woman about 65 years old. The whole of the structures of the space were spread about the growth, which weighed three pounds

after removal, and had been slowly growing for nearly twenty-five years. Of late, however, it had increased with great rapidity. The patient was making a good recovery.

Fibro-cystic Tumour of Uterus.—Patient *æt.* 41, no family or miscarriages. Complained of pain in left side of chest. Tumour found in right side of abdomen, thought to be ovarian, was attached by pedicle one inch wide to right side of uterine fundus, filled with some two pints of clear fluid, and its interior degenerating—*i.e.*, breaking up. Pelvis washed out with water, and glass drainage tube in for thirty-six hours. Patient left hospital quite well on the twenty-fifth day.

Polypus.—Patient *æt.* 44, two children, married twenty-seven years. History of menorrhagia for four years. Patient blanched, anæmic. Never examined until just before admission. Polypus cut off on November 17th. Patient doing very well since.

Calculus impacted in Ureter, forming Sub-vaginal Tumour.—Mr. John W. Taylor narrated two recent cases of calculus impacted in the ureter, which he had diagnosed from the presence of a little painful tumour felt on vaginal examination in the situation of one ureter near its entrance into the bladder. In one of the cases the stone had passed, with disappearance of the local tumour, and the calculus from this case was shewn. In the other case the tumour persists.

Pemphigus.—Dr. Stacey Wilson shewed a very typical specimen of this disease.

Paper.—Mr. Hall Edwards read a paper on the Optical Lantern as an Instrument of Medical Education. A number of slides of diagrams, lens micro-photographs, and pathological specimens were exhibited on the screen.

Wednesday, December 9th, 1891.

Mr. BENNETT MAY, F.R.C.S., President, in the Chair.

Bulbar Paralysis with bilateral paralysis of the abductors of the vocal cords; death after tracheotomy.—Dr. Suckling read notes of the case of a man aged 43, a commercial agent, who

was admitted into the Queen's Hospital under his care on account of attacks of urgent dyspnœa. He had been ailing for three or four years and had gradually become worse. His speech was slurred and thick. The lower lip hung down flabbily, and he had to press it against his gums when eating. There was distinct paresis in the lower part of the face on the left side. He suffered also from dysphagia, especially for liquids. The soft palate and uvula were relaxed, but not quite paralysed. He could protrude the tongue, but its movements were feeble. Phonation was feeble. He had no power of expectorating, and this gave him much discomfort. There was paresis and wasting of the left deltoid, and wasting of the left supra and infra spinati. The thenar eminence on both sides was flattened. The vocal cords were adducted on inspiration, and were drawn closely together occasioning stridor; on expiration they were slightly separated, the edges vibrating. Dr. Suckling did not consider it safe for the patient to leave the hospital until tracheotomy had been performed, and the patient himself was very anxious to have the operation done. He was in a very feeble state, being obliged to sit up in bed to breathe, and his breath sounds over both lungs were very feeble. A few hours after the operation was performed, no anæsthetic being used, the patient became suddenly worse and was cyanosed. The breathing became very slow and shallow, and soon ceased. There was no history of syphilis, the knee jerks were normal, and there were no signs of locomotor ataxia. A microscopic examination of the medulla had not yet been made. The occurrence of paralysis of the abductors of the glottis in bulbar paralysis was rare and worth recording. The man had been a drinker, but had never worked in lead.

Sarcoma of Radius.—Mr. Heaton shewed a sarcoma of the radius removed from a boy under Mr. Pemberton's care. Some swelling of the fore-arm had been noticed for three months, and had suddenly increased in size three days before admission. On admission to the hospital there was a fairly well-defined swelling of the right fore-arm, chiefly over the

dorsal surface of the radius. The swelling was firm and elastic, slightly tender, and firmly attached to the radius. No pain or rise of temperature at night. The diagnosis lay between chronic osteitis and periostitis, or some form of new growth. The absence of pain, rapid history, and the sudden increase in its size before admission without any evidence of inflammation, all pointed towards new growth. Amputation was performed after an exploratory incision. The boy made a rapid recovery, and when seen some months afterwards was in good health. The specimen shewn was a well-defined encapsuled sarcoma of the shaft of the radius. The growth apparently started in the medulla, and instead of expanding the shaft, seemed to have perforated it and then enveloped it like a periosteal sarcoma. Microscopically it was a myeloid sarcoma, with numerous large multinucleated giant cells. The interest of the specimen lay in the comparative rarity of a myeloid sarcoma growing from the shaft of a long bone, such growths almost always appearing at or near the articular ends, and then expanding the bone around them. Being a myeloid sarcoma, the prognosis of the case was fairly good. Such growths, in his experience, rarely recurred, and if they did, the recurrence was almost invariably a local one.

Tubercular Disease of Testicles.—Mr. Barling shewed a patient, aged 31, with acute tubercular disease of both testicles. The disease was attributed by the patient to an injury three months ago, but the history of this is uncertain. When first seen, each epididymis was a good deal enlarged, irregular, and very tender; a little fluid existed in each tunica vaginalis, and the cord was rather thickened and the skin of the scrotum red. There was no appearance or history of urethritis; no evidence or history of syphilis. The temperature at night varied from 101° to 103° , and in the morning was about 99° . No definite evidence of any other tubercular lesion could be discovered in the body. At the present time the disease has extended to the body of the testicles on each side, and the enlargement is steadily increasing. The left testicle is the size of a small fist, and both are very

tender. The patient has been advised to have double castration performed (after exploratory incision) for two reasons, viz., the disorganised condition of the testicles rendering them functionless, and the danger of general infection and of extension to the base of the bladder. Operation was declined.

Retroversion of the Gravid Uterus.—Dr. Purslow read notes of a case of retroversion of the gravid uterus. The patient, who had had four children and no miscarriages, was admitted at 6 p.m. on November 14th complaining that she had been unable to pass water from noon on the previous day; no other symptoms. Last menstruated on August 1st. On examination, the bladder was distended reaching to umbilicus, and there was a well-marked retroversion of uterus, the os being high up behind pubes, and the fundus forming a large doughy swelling in posterior part of pelvis. After withdrawing urine, an attempt was made to replace fundus by pressure of fingers in vagina and then in rectum, but this did not succeed. The patient was then placed in genu-pectoral position, and the uterus righted itself and there was no further trouble. Dr. Purslow urged the importance of trying replacement in genu-pectoral position before proceeding to give an anæsthetic.

Biliary Calculus.—Mr. Christopher Martin shewed a biliary calculus, removed ten days previously by Mr. Lawson Tait by the operation of cholecystotomy. The patient was a middle-aged woman who had suffered from repeated attacks of biliary colic during the preceding three months. Each attack was followed by violent bilious vomiting, but never by jaundice. She had never found gall-stones in the fæces, nor had the stools been pale in colour. On examination, the gall-bladder was found to be greatly enlarged, reaching to two inches below the umbilicus. It formed a smooth fluctuating mobile swelling the shape of a soda water bottle. At the operation it was found to be distended with a clear colourless mucous fluid, in which not a trace of bile could be discovered. There was but one stone, and this was impacted in the neck of the gall-bladder. It was about the size and shape of a nutmeg, and remarkably

tuberculated on the surface. The patient was making an excellent recovery.

Paper.—Mr. Ross Jordan read a paper on the Lunacy Act of 1890, and the certification of lunatics.

REVIEWS.

A CRITICAL STUDY OF THE BICEPS CRURIS MUSCLE.*

DR. MOSHER points out that the synovial membrane of the knee is subject to friction in three regions, viz. :—

1. On the line of attachment of the capsular ligament to the tibia, anteriorly (owing to traction of the coronary ligaments in sudden and forced flexion of the leg, and to blows from without).

2. At the point of insertion of the crucial ligaments and cornua of the external articular cartilage.

3. Behind the long external lateral ligaments, near the head of the fibula.

The biceps on the outer side performs alone the work shared by several muscles on the inner side. This indicates a complex arrangement of muscular fibre, and a functional activity in excess of its fellows. A careful examination of the insertion of the muscle reveals the following arrangement. The fibres of the short head, which take origin from the linea aspera, pass downwards and outwards, and *end* in the aponeurotic band of the long head; they materially increase the leverage of the muscle. The fibres from the supra-condyloid ridge and inter-

* A Critical Study of the Biceps Cruris Muscle as it Relates to Disease in and around the Knee Joint. By Elijah M. Mosher, M.D., of Brooklyn. *Annals of Surgery*, November, 1891.

muscular septum pass in the same direction, but do not *end* in the aponeurotic band; they join it, pass down along its anterior border, and spread out on its femoral surface. Three or four centimetres above the head of the fibula a group of them separate, become fibrous, and are applied to the capsular ligament at its junction with the ligament of Winslow. These act the part of a tracter of the capsule and inter-articular cartilage. The remaining fibres from the supra-condyloid ridge become tendinous opposite the head of the fibula, divide into two slips (a superficial and deep), between which the long external lateral ligament passes to its insertion into the head of the fibula. The superficial slip is closely connected with the fibula tendon of the biceps; it crosses the tibia to a small but strong insertion near the outer border of the ligamentum patellæ. The deep portion of the tibial tendon, much larger than the superficial, crosses the tibia beneath the lateral ligament. In passing to its insertion it not only plays over the surface of the capsule above the head of the fibula, but blends with it along its line of attachment to the tibia, and some fibres pass upward upon it as far as the insertion of the coronâry ligament.

Dr. Mosher points out that this intimate relation between the biceps muscle, the capsular ligament, and through it with the inter-articular cartilage and synovial membrane, has not been described before. The importance of this wide insertion of the biceps, and its action as a flexor of the leg, an external rotator, and a retractor of the capsular ligament and inter-articular cartilage, is pointed out. With such a leverage upon the tissues in and around the knee joint, it is not difficult to believe that sudden and forced action of the biceps muscle, as in a stumble up stairs, over the kerb stone, or downwards, might produce serious injury within the joint to the capsular ligament, or to the periosteum at its own point of attachment to the tibia. Further, in disease of the joint, this action of the biceps must in many cases be a cause of irritation.

Dr. Mosher suggests, and has practised with success, division

of those fibres of the muscle that make traction on the capsule. In this case, an incision was made in front of the fibular attachment of the external lateral ligament, extending downwards and forwards, and the tibial attachment of the biceps divided. In order however to avoid an incision so near the joint, Dr. Mosher points out that the same result may be attained by a division of the muscular fibres taking origin from the external supracondyloid ridge of the femur and the inter-muscular septum, these being the only ones that make traction on the capsule.

The paper is one that will amply repay careful perusal.

A HISTORY OF MEDICAL EDUCATION.*

MR. HARE has done the medical profession in this country a great service by translating this valuable work of the learned Viennese professor. No such complete account of the history and progress of medical education in the civilised world can be found elsewhere; and it is here presented in a compact and accessible form, so as to be within the reach of every one of us.

Commencing with the ancient world, the author traces the study of medicine in India, Egypt, Persia, Judæa, among the Greeks in Greece and Alexandria, and finally in Rome. He shews to what a high degree of excellence the cultivation of medical science among the Greeks had reached, to be finally almost lost in the general decay of civilisation following the collapse of the Roman power. He then sketches the struggles of medical science against the unfavourable influence of Christianity; its temporary development under the beneficent rule of the early Mahommedan princes; and the gradual progress made as the European world emancipated itself from ecclesiastical thralldom. He gives a most interesting account of the origin

* A History of Medical Education from the Most Remote to the Most Recent Times. By Dr. Theodor Puschmann. Translated and edited by Evan H. Hare, M.A. (Oxford), F.R.C.S. (England), L.S.A. (London). London: H. K. Lewis. 1891.

of the European Universities and of the various steps by which medical teaching became organised, dealing with each of the principal branches of study; and he gives a very full account of the development it underwent during the sixteenth, seventeenth, and eighteenth centuries.

The last section of the book gives an account of medical education at the present time in the chief civilised countries of the world. The English Universities not unnaturally do not escape some not undeserved censure for the neglect with which they have treated the study of medicine; and the author quotes a remark by E. Renan to the effect that a small German University, with its awkward professors and its starving private teachers, does more for science than all the pomp and wealth of Oxford—a statement which few will care to gainsay.

In fairness to the author we must say that he judges fairly all round, and is not blind to the defects that exist in his own country or in other German States. His praise, too, is freely given to all the good features of English medical education, and the blots upon which he points out are generally admitted here. If the medical profession was not crushed under the vested interests of nineteen licensing corporations, the state of things of which he justly complains would have been long ago swept away.

INDIGESTION.*

THIS is a little book which aims at being “a concise clinical manual” of the diagnosis and treatment of indigestion. We have read it through carefully, and it is evident that the author has made himself acquainted with much of the modern literature of the subject; but unfortunately, although he gives his readers the benefit of various extracts from it, he discards its teaching; and, so far as his own views and practice go, he

* Indigestion : a Manual of the Diagnosis and Modern Treatment of the Different Varieties of Dyspepsia. By George Herschell, M.D. Lond. London : Baillière, Tindall, and Cox.

might, if we except a certain number of new drugs, have written the book twenty years ago. No man who had accepted modern views would write a book on "indigestion" any more than he would write one on "cough" or "dropsy."

The volume begins with an introductory chapter on the physiology of digestion, which is too brief to be anything more than a reminder of what most readers have learnt from works on physiology. It is not all that one could wish; but we take the statement that the saliva contains 50 per cent. of solids to be only a slip of the pen.

This chapter is followed by one on the causes of indigestion, which mixes up in a singular fashion etiology and morbid anatomy. For example, among the causes we have heredity, exposure to cold and wet, catarrh, ulcer, and cancer of the stomach! In passing, we may notice that it is not French of Paris to describe Trousseau's clinical lectures as "*Lectures Clinicales*;" nor do we know what is meant by Leube's Disease; while we think many would demur to Gould's cases of dyspepsia associated with ocular defects being classed as reflex neuroses, as it is equally probable that the dyspepsia was the consequence of bad position, and is no more to be regarded as a neurosis than the habitual stoop so often met with in such cases.

The chapter on symptoms is necessarily a collection of various symptoms which have been or may be generally or occasionally attributed to disorders of the digestive organs. Such a chapter can only be useful to remind us that such symptoms may with more or less frequency be due to this cause.

The more important portion of this part of the book is the chapter on the objective examination of the stomach; but it is by no means complete. For example, in the discussion of the means of recognising dilatation of the stomach, though he gives Ziemssen's plan of distending it with carbonic acid gas—which is uncertain and may be very painful—and Penzoldt's of filling it with water by means of the stomach tube, he omits

the quicker method superior to either, suggested by Ewald, of inflating the stomach through the tube by means of the bellows of a spray apparatus. He does not describe the test meals of either Ewald or Leube; and though he gives some account of the method of examining the stomach contents, he affirms that it is of little or no use. His clinical varieties of indigestion include only five groups, namely, acute and chronic gastric catarrh, acute and chronic duodenal catarrh, and functional dyspepsia. His description of duodenal catarrh appears to us to be excessively vague, and omits the one symptom which is pathognomonic, namely, more or less jaundice. We do not believe that catarrh of the duodenum occurs independently of gastric catarrh.

The last chapter is on treatment, in which the various symptoms are reviewed and remedies suggested. Washing out the stomach is condemned even in dilatation! Papain is strongly recommended where there is deficiency of gastric juice, though, unless we make use of the methods for examining the stomach contents which were said to be "of little or no use," it is hard to see how this indication is to be obtained; *hydrastis canadensis* is highly commended for gastric catarrh, and *cannabis indica* and valerianate of zinc in neuroses of the stomach.

HANDBOOK OF DISEASES OF THE EAR.*

THIS is one of Lewis's practical series and like most of its fellows, whilst not an exhaustive work on the subject of which it treats, yet contains all the information that is required by those for whom it is intended, viz., students and men engaged in general practice. The advances that have been made during the last few years have necessitated some re-arrangement of the first edition, and fresh chapters have been added on the diseases of the nasopharynx and on the important complications and sequelæ of middle ear suppuration. As the book now stands it is a concise and reliable guide in those common ear troubles for which the practitioner is called to advise.

* Handbook of Diseases of the Ear. By Urban Pritchard, M.D. Edin., F.R.C.P. Eng. London: H. K. Lewis. 2nd edition, 1891.

THE PHYSICAL SIGNS OF CARDIAC DISEASE.*

WHEN the first edition of this little work appeared, we had much pleasure in expressing our opinion that it gives, in the clearest possible manner, the best directions for the study of the physical diagnosis of diseases of the heart. We warmly commend it to students and to those who have to train them. The information afforded is in small compass and is given in a very pleasant form, while the text is abundantly illustrated with instructive diagrams.

DIAGRAMS OF THE MOUTH, FAUCES, AND LARYNX.

A BOOK of these, containing fifty sheets, has been issued by J. T. Balcomb, of 23, Southampton Buildings, Chancery Lane, W.C. On each sheet there are three diagrams, one of the larynx alone, a front view of mouth, tongue, and fauces, and a view of posterior nares, base of tongue, and larynx. These drawings are very useful for clinical purposes, and they have the merit of being cheap, the book costing only 1s. 1d. post free.

PROFESSIONAL CALENDAR.

WE have received from Messrs. Burroughs, Wellcome and Co. a copy of their professional calendar for 1892. It is suitable not only for keeping on the desk, but also for carrying in the pocket. Each leaf can be turned back and retained, so that the whole of the diary can be kept as a record of the year's appointments. Messrs. Burroughs, Wellcome and Co. desire us to say that they will be happy to send a copy to any medical man who will write to ask for it.

* The Physical Signs of Cardiac Disease. By Graham Steell, M.D. Second edition. Manchester: J. E. Cornish. 1891.

LETTS' MEDICAL DIARY.

WE have received also Letts' Medical Diary for 1892, published by Messrs. Cassell and Co. It is very complete, containing not only the ordinary visiting list, but also special pages for vaccination and midwifery engagements, engagements under the Factory Act, and for particulars of cash accounts. It is well bound, and of a size suitable to be carried in a pocket.

LEWIS'S NURSING CHARTS.

THE nursing charts printed and published by Mr. H. K. Lewis are intended for private nursing. They contain columns for each hour of the twenty-four, and headings under which the nurse may note the temperature, pulse, sleep, nourishment, amount of stimulant taken, and other particulars. There is space in which to enter the diet and treatment ordered; but this is of questionable value, as the space is very limited. On the whole, the charts are admirable, and will be found of great advantage in the management of cases of acute disease in private houses.

New Inventions, Drugs, etc.

IODOPYRIN.—Messrs. Burroughs, Wellcome, and Co. have sent us a specimen of iodopyrin. This product is a chemical compound of iodine with antipyrin in which an atom of hydrogen is replaced by iodine, thus, $C_{11}H_{11}IN_2O$. It is only slightly soluble in cold water and alcohol, but readily soluble in hot. It is perfectly tasteless and without odour. This product has been tested in the clinic of Professor R. R. v. Jaksch, and is reported upon by Dr. Egmont Munzer in the pages of the *Prager med. Wochenschrift*, 1891, Nos. 4 and 5. The product was first prepared by Dittmar (*vide* Berichte der Chemische Ges. zu Berlin 11, 1885). Dr. Munzer says: "I have studied the action of this substance principally on two types of fever—(1) on typhus abdominalis and (2) on pulmonary tuberculosis.

Five cases of typhus are recorded, and in each instance the temperature was rapidly lowered to normal. In the cases of tuberculosis pulmonum the administration of the drug caused profuse sweating, and in every way the antipyretic action was all that could be desired." When iodopyrin is taken into the stomach it is decomposed into iodine and antipyrin.

New Books, etc., Received.

- First Lines in Midwifery. By G. ERNEST HERMAN, M.B., F.R.C.P. London: Cassell and Co.
- A Manual of Operative Surgery. By FREDERIC TREVES, F.R.C.S. Two volumes. London: Cassell and Co.
- The Theory and Practice of Nursing. By PERCY G. LEWIS, M.D. London: The Hospital, Limited.
- Notes on Gynæcological Nursing. By J. B. HELLIER, M.D., M.R.C.S. London: J. and A. Churchill.
- On Harelip and Cleft Palate. By WILLIAM ROSE, M.B., B.S. Lond., F.R.C.S. London: H. K. Lewis, 136, Gower Street, W.C.
- The Nurses' Dictionary of Medical Terms and Nursing Treatment. Compiled by HONNOR MORTEN. London: The Hospital, 140, Strand.
- A B C of the Swedish System of Educational Gymnastics: a Practical Handbook for School Teachers and the Home. By HARTVIG NISSEN. Philadelphia and London: F. A. Davis.
- Surgical Diseases of the Ovary and Fallopian Tubes, including Tubal Pregnancy. By J. BLAND SUTTON, F.R.C.S. With 119 engravings and 5 coloured plates. London: Cassell and Co.
- Outlines of Practical Physiological Chemistry. By CHARLES LARKIN, F.R.C.S. Eng., and RANDLE LEIGH, M.D., B.Sc. Lond. Second edition, enlarged and revised. London: H. K. Lewis.
- The Organic Analysis of Potable Waters. By J. A. BLAIR, M.B., C.M., D.Sc. Edin. Second edition. London: J. and A. Churchill.
- A Contribution to the Demography of Southern Australia. By THOMAS BORTHWICK, M.D. Edin. London: Baillière, Tindall, and Cox.

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FEBRUARY, 1892.

ORIGINAL COMMUNICATIONS.

REMARKS ON ACUTE SUPPURATION IN JOINTS,
WITH CASES.

BY E. N. NASON, M.B.,
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BIRMINGHAM.

ACUTE suppuration in a joint may be due to many different causes, and may be modified by many varying conditions preceding or accompanying the suppuration; but the ultimate result in almost every case where treatment is neglected, or too long delayed, is destruction of the joint affected.

The following series of cases which have recently come under my notice serve to illustrate some points in the course and treatment of this very serious affection.

Case 1. *Lacerated wound of knee joint, with injury to patella.*—I introduce this case for comparison with the three cases which follow it, as shewing the complete success of immediate compared with the hopeless failure of delayed treatment in such cases. Walter H., aged 9, was admitted into the General Hospital on July 9th, 1889, suffering from a lacerated wound, three inches and a half long, over the inner edge of the right patella, splitting the edge of that bone and freely opening the joint. The wound, which easily admitted three fingers, was caused by a fall upon a broken piece of pot, and occurred about an hour and a half before admission. The boy was at once

anæsthetised, and the joint was thoroughly irrigated with perchloride of mercury lotion, 1-1000. The wound was then accurately closed by twelve deep and superficial sutures and dressed with wood-wool wadding, immobilised, and slung from a cradle in the usual way. There was no subsequent rise in temperature, no pain or constitutional disturbance, and in less than three weeks the boy could walk without pain, and had perfect movement in the joint.

Case 2. *Lacerated wound of knee joint, with splintering of patella.*—William G., aged 24, was admitted on July 1st, 1888. Five days before, he had been thrown from his cart and had sustained the above-mentioned injury to his right knee. The treatment before admission had consisted in unlimited linseed poultices. With an open knee joint no treatment could by any possibility have been more disastrous. There had been high fever, severe pain, constant vomiting, and absolute sleeplessness. The joint was full of pus, which was oozing in a foetid stream from a sloughy wound the size of a crown piece on the inner side of the right knee, and there was a spreading cellulitis above and below the joint. The knee was cleansed, and several splinters of bone removed from the edge of the patella. A counter opening was made at the outer border of the patella, and the knee fixed on a Watson's anterior splint and slung from a cradle. Continuous irrigation was then begun by the following method:—A piece of drainage tube, half an inch in diameter, some six inches in length, with three large holes cut near the middle, each involving more than half the circumference of the tube, was passed through the joint beneath the patella. This tube was connected by two junctions of glass tubing with two long pieces of drainage tube. The free end of one of these was sunk, by means of a glass stopper, in a receptacle placed by the side of and some two feet above the patient's bed, and filled with warm perchloride of mercury lotion, 1-10,000. The second tube, which was connected to the outer side of the joint, passed to a convenient receptacle beneath the bed. A syphon action was started, and fluid allowed to flow in a continuous

stream through the joint. A screw clamp, fixed to the afferent tube, regulated the flow, and macintoshes were so arranged as to catch any fluid which might leak from the tubes or joint and convey it to the receptacle beneath the bed.

Within a few hours pain ceased, temperature began to come down, and patient was able to sleep. His appetite rapidly improved, and the pus, which was washed in considerable quantity from the joint, soon lost its foul odour.

By July 27th the knee itself could be handled without pain; but there was a collection of pus on the outer side of the thigh above the upper limit of the synovial pouch and in the position where the cellulitis, noticed on admission, had been most intense. This was opened and drained, but pus continued to burrow up the thigh.

On August 7th irrigation was stopped, as the joint itself had ceased to discharge; but several other collections of pus, which had formed among the thigh muscles, had to be opened.

Patient's health now began to fail; and on September 3rd, although the joint had ceased to discharge and was apparently quite quiet, his condition was such as to render amputation through the thigh advisable, as the suppuration in the thigh, despite very free drainage, was still progressing.

On examining the knee joint after amputation, the cavity of the joint appeared to be completely shut off from the inter-muscular abscesses, and was quite free from pus. The crucial ligaments were swollen, softened, and rather dark in appearance. The synovial membrane, where it could be defined, was oedematous and thickened. The cartilages were thinned and in some places almost eroded, but there was no grating on movement. After amputation the patient made a satisfactory recovery.

Case 3. *Acute suppuration in knee joint from punctured wound.*—Edward T., aged 40, was admitted on July 17th, 1888. About twelve days before, he had run the point of a scythe into the left knee joint. Before admission no treatment but linseed poultices had been adopted, and with the usual disastrous results. On admission, pus was oozing from a wound at

the inner border of the left patella. The joint was absolutely disorganised, and there was a very intense cellulitis above and below, and great pain on the slightest movement. The patient was much emaciated, and had a distinctly septic look. His temperature was 105°F.

Amputation through the thigh was performed next morning. Pus was found to have burrowed to a very large extent among the muscles of the thigh, and the joint was completely destroyed. A few days later the flaps sloughed and recurrent hæmorrhage from the femoral occurred, rendering ligature of the common femoral necessary on July 30th. After this, recovery slowly took place, and patient was discharged on September 7th.

Case 4. *Acute suppuration of knee joint from punctured wound.*—Abigail A., aged 44, was admitted on June 30th, 1888. Ten days before admission she had run a needle into her knee. I found the joint distended with pus, the skin over the joint red, glazed, and shiny, and marked cellulitis above and below. Constitutional disturbance was severe, temperature 102°F., accompanied by delirium. I incised and drained the knee at once. The pus evacuated was horribly fœtid. At night there was much noisy delirium. Despite drainage and antiseptics, the cellulitis of the thigh extended rapidly, and patient was in consequence removed to the cellulitis ward.

On July 1st diarrhœa set in, and resisted all treatment. On July 13th it was decided to amputate through the thigh. Her symptoms, however, instead of being relieved by this, became more markedly pyæmic, her temperature rising to 107°F. Death occurred on July 30th.

I have arranged these traumatic cases in a series of ascending severity, which severity is directly dependent on three principal factors :—

- a* Length of time the case has remained untreated.
- β* Absence of free (or any) drainage.
- γ* Presence of putrefaction.

The cases shew the following points very clearly :—

1. That even where injury has been severe and the joint

freely opened, giving abundant opportunity for the entrance of irritative matter, an admirable result may be obtained if anti-septic precautions and careful approximation of cut edges are undertaken without delay.

2. The danger of allowing suppuration to become established, and the still greater danger of allowing it to go on until the capsule of the joint has ruptured. Before this has occurred, as it probably will before many days have elapsed after suppuration has begun, free drainage or continuous irrigation will in all probability save the limb, and, if there is no erosion of cartilage, the joint may completely recover. After rupture of the joint capsule such a satisfactory result is improbable. In Case 2 the joint was in process of healing and all suppuration in it had ceased, but the burrowing of pus beneath the thigh muscles consequent on the rupture of the joint capsule cost the patient his limb.

3. The chief danger of all arises from allowing the pus formed to collect under pressure after having become putrefactive, as in Case 4, where there was no escape at all for the pus, and where pyæmia and death resulted.

Case 5. *Acute catarrhal synovitis of elbow joint.*—Ellen H., age 18, unmarried, was admitted on September 7th, 1889, complaining of pain and swelling of the right elbow joint. She gave the following history. During the night of September 4th she was awakened suddenly by a severe “jumping” pain at the back of the right elbow. She had not injured the joint, nor could she in any way account for the pain. She applied next day at the General Hospital, where the case was looked upon as rheumatic. Despite anti-rheumatic treatment, however, pain and swelling steadily increased, and she began to feel very ill, and three days later applied at the surgery of the General Hospital and was admitted on the surgical side.

I found the right elbow joint red, swollen, hot, and exquisitely tender. It was distended with fluid, and there was considerable inflammatory œdema about the joint. The temperature was 102°F. The limb was fixed, in a poro-plastic splint,

in the semi-flexed position, and slung from the top of the bed. An ice bag was applied, and an aperient and a hypodermic of morphia given. The temperature came down next morning, but rose still higher next night accompanied by increased pain and swelling. The joint was then examined under an anæsthetic, and as the distending fluid was found to be pus, an incision was made just above and internal to the insertion of the triceps, and the joint opened and thoroughly irrigated with perchloride of mercury lotion, 1-1000. A small piece of drainage tube was inserted, and the joint, after being dressed antiseptically, was replaced in the angular splint and slung as before.

Pain was much relieved at once and the temperature came gradually down, the swelling and cellulitis slowly subsiding. The drainage tube was finally left out on October 3rd, and soon after passive movements were begun. Six weeks later the patient could move the joint freely and without any pain.

I have described this case as one of acute catarrhal synovitis going on to suppuration, though I think it is quite open to question whether it should not rather be classed with the "acute infective" cases to be mentioned later. The pathology of such a case as this is obscure. I inquired and sought most carefully for any possible focus of infection, but could find none. There was no history of any previous illness, either rheumatic or other. The sudden onset, without any previous feeling of illness, rigor, or other constitutional disturbance, exactly resembles what occurred in all the "infective" cases to be mentioned later.

Case 6. *Suppuration in elbow joint in the course of chronic rheumatoid arthritis.*—Mrs. L., aged 59, had suffered for several years from pains of a rheumatoid nature in the left elbow joint. These pains, which were subject to occasional exacerbations, were accompanied by some stiffness of the joint. Most of the phalangeal joints were thickened and distorted by rheumatoid arthritis.

In July, 1890, a swelling formed on the inner side of the

upper arm just above the joint. In the following November this swelling opened of its own accord just above the joint posteriorly. It discharged a thin purulent fluid. Soon after this the joint began to get stiff and more painful, and other sinuses to form.

I first saw her in June of the present year. The elbow was then fixed at a right angle, the slightest attempt at movement caused great pain, and the tissues around were extremely œdematous, thickened, and inflamed. There was a large collection of pus occupying the lower third of the upper arm on the inner side. There were several sinuses communicating directly and indirectly with the joint. The arm was quite useless, and gave rise to much pain. There was, however, scarcely any constitutional disturbance. I excised the joint on July 7th last.

On examining the ends of the bones after removal I found all cartilage gone, and the ends of the various bones in most places eburnated and extremely hard. Here and there the cancellous structure had been invaded, but there was comparatively little destruction. The head of the radius was split vertically into three pieces, but the pieces held together even after removal. The cavity of the joint contained pus, and there was a large collection of pus above the joint. The tissues around the joint were in a pulpy œdematous condition, but there was no sign of caseation anywhere.

After the operation there was scarcely any rise in temperature and remarkably little pain. All discharge soon ceased, and within five months the arm could be used as freely as the other, and all the movements were perfect and could be executed without pain.

It is unusual for rheumatoid arthritis to end in suppuration. In this case, which is very similar to one recorded by Mr. C. W. Mansell Moullin in the *Lancet* for July 18th, 1891, suppuration probably began in a synovial cyst, and extended from this into the joint itself. It is certainly remarkable that so little constitutional disturbance existed, and that comparatively little

destruction of the joint had taken place, although pus had been present in the joint for about nine months, communicating with the surface but without any free drainage. Possibly the eburnated ends of the bones resisted the disintegrating action of the pent up pus, which in a previously healthy joint must have done much more mischief.

Case 7. *Acute infective suppuration in knee joint.*—Mary Sophia M., age 32, married, five children, and about eight months pregnant, was admitted on August 27th, 1889, complaining of severe pain in the right knee. She had been in her usual health up till August 9th, except that she had suffered for some time past from troublesome leucorrhœa. On the evening of the 9th she was seized quite suddenly with a sharp pain in her right knee. She had no previous rigor or feeling of chilliness, nor had she injured the knee. The joint soon began to swell, and fever, sweating, and vomiting followed. After a week constitutional disturbance subsided somewhat, but the knee became more swollen and painful.

She applied at the General Hospital on August 27th and was admitted. Immediately afterwards the joint was freely opened under the usual antiseptic precautions, and a considerable quantity of odourless pus evacuated. The knee was drained, immobilised, and dressed antiseptically. Temperature dropped at once and kept down, pain diminished, and appetite returned. Several attempts were made during the next few weeks to dispense with the drainage tube, but pus at once began to collect and temperature to rise, so that the tube had to be retained until September 18th, at which date patient was confined. After this the swelling of the joint rapidly subsided and pus no longer collected, the discharge ceasing almost immediately, shewing that a chronic inflammatory condition had been kept up by the venous obstruction due to her pregnant condition.

Patient left the hospital on October 17th able to walk without pain; but the knee joint was permanently stiff.

Case 8. *Acute infective suppuration in knee joint.*—Phillis P., aged 21, unmarried, was admitted on September 11th, 1889.

She complained of pain and swelling of the right knee, also of feeling very ill. She gave the following history. Three weeks before, she had struck the right knee against a bucket, causing considerable pain at the time. Four days later the knee began to swell and to become more and more painful. Counter-irritation gave no relief, and the knee steadily got worse until the date of admission. Patient had previously had fairly good health, though she had never been very strong, and during the last twelve months had suffered from persistent leucorrhœa.

On admission she looked extremely ill, her colour was earthy, her tongue furred, and there was much emaciation. Her temperature was 100·4°F. Her right knee was distended with fluid, was hot, but not red or acutely painful. There was no œdema of the thigh and but little of the leg, and what was present was rather obstructive than inflammatory œdema. The knee joint was opened by an incision at the outer edge of the patella, and thoroughly flushed with perchloride of mercury lotion, 1-1000, and a drainage tube left in. The joint was then dressed and fixed in the usual way. Morphia (gr. 1-6th) and brandy and milk in frequent small quantities were ordered, as she had neither slept nor been able to retain anything on her stomach for some days past. The temperature dropped to normal, the food was retained, and patient slept well almost from the first. Improvement continued slowly but steadily, and the drainage tube could be left out in about ten days. She was discharged on October 23rd able to walk without pain; but she still wore a starch case on the knee, which remained permanently stiff.

Case 9. *Acute inflammation of the upper epiphysis of the tibia, followed by acute osteomyelitis of tibia and suppuration in knee joint.*—Rose C., age 14, was admitted on February 11th, 1889. She complained of pain and swelling of the right knee. She gave the following history. On getting up on the morning of February 5th she was seized quite suddenly with severe pain at the back of the right knee. She was unable to stand on that leg, and the pain got worse, and was followed two days later by swelling of the knee. Absolute sleeplessness and general con-

stitutional disturbance followed, and she applied for relief at the General Hospital on February 11th. Her condition then was as follows:—Temperature 103°F. , with marked constitutional disturbance. The right lower limb was greatly swollen, the knee joint was distended with fluid, and there was brawny œdema of leg and thigh. There was no redness, but there was tenderness on deep pressure, and fluctuation over the back of the tibia.

The knee joint, which was found to contain pus under great tension, was incised, and continuous irrigation started. The temperature came down the same evening to 100°F. , and there was great relief to pain, and patient slept the greater part of the night. A few days later a collection of pus over the external surface of the tibia was opened, and it was then found that nearly the whole of the posterior surface of the tibia was bare, and that there was a track passing upwards to the upper epiphysis and on into the joint. After this, irrigation was stopped, as very little good seemed likely to result from it, and several fresh incisions were made, giving very free drainage. Suppuration continued to be most profuse, and three weeks later it was decided to amputate, as the child's health was becoming undermined. After amputation through the lower third of the thigh the child made a slow but satisfactory recovery. The whole of the shaft of the tibia was destroyed, and there was in addition a collection of pus at the back of the femur.

Case 10. *Acute inflammation of the upper epiphysis of the tibia, followed by acute suppuration in the knee joint.*—Annie E., age 10, was admitted on April 10th, 1889, complaining of pain and swelling of the left knee. Three days before, on getting up in the morning, she was seized with severe pain in the left knee. Redness and swelling soon followed, and increased up to the time of her admission.

When admitted, she was in a fearful state of dirt and neglect; her temperature was 103°F. , with marked constitutional disturbance. The left knee joint was distended with fluid, and the

least movement caused great pain. There was marked redness and extreme tenderness over the antero-internal surface of the head of the tibia, at which point fluctuation was evident.

This swelling was opened and found to have originated at the epiphysis, but to communicate also with the cavity of the knee joint, from which a thin pus now began to find its way. An incision was then made by the outer side of the patella, and the joint opened and thoroughly irrigated with perchloride of mercury lotion, 1-1000. A drainage tube was left in the joint, which was dressed antiseptically, thoroughly immobilised, and slung in the usual way. Pain, swelling, and constitutional disturbance gradually subsided until the afternoon of April 15th, when, through a mistake, the antiseptic dressings were omitted. Although antiseptic dressings were re-applied next day, all the signs of septic absorption set in at once. The temperature shot up to 103 and 104°F. at night and assumed a markedly hectic type, pain returned worse than ever, cellulitis with œdema of leg and thigh steadily progressed in spite of free drainage.

On April 22nd continuous irrigation by the method above described was begun, a solution of perchloride of mercury (1-10,000) being used. That evening the temperature fell instead of rising, and next morning had dropped to normal; and though it rose a little for a few nights, it remained permanently down after April 30th. With the fall of temperature there was immediate relief of pain, subsidence of inflammatory œdema, and immediate and continued improvement of general condition. Continuous irrigation was kept up for a week, at the end of which time the knee had so much improved that simple drainage and antiseptic dressings were substituted.

The softened and unhealthy tissues in the neighbourhood of the epiphysis were now scraped away, and a double hip-splint, with slight extension, applied and kept on for a month. All discharge from the joint soon ceased, and the sinus over the epiphysis closed a little later. In two months' time the child could walk without pain, and had free movement in the joint. Mr. Barling tells me he saw the child last spring, when she

came into the hospital for a few days on account of some pain over the damaged epiphysis, which subsided completely with rest. The joint was still as good as the other.

In the last four cases it is noticeable that the onset was absolutely sudden. This fact, among others, certainly suggests that the acute (infective) inflammation of synovial membrane, epiphysis, or periosteum, was set up by the sudden advent of some intensely irritating substance or organism possibly carried by the blood-stream from a distant infecting focus. Such focus may be a purulent discharge from the genito-urinary tract or elsewhere, or some boil, pustule, or suppurating wound.

In cases such as 7 and 8 the joint-mischief and the constitutional disturbance are neither so severe nor so rapid in development as in cases where putrefactive organisms have gained access. Simple aseptic drainage, or this combined with an occasional antiseptic flushing, is usually sufficient to bring about a termination of the suppurative process, though if this be delayed, a permanent stiffness of the joint will result.

Again, while putrefactive organisms are excluded, the inflammatory action is not only much less acute, but tends to bring about a defensive blocking of the absorbents connected with the synovial membrane (possibly by an adhesive inflammatory action), so that, although pus may remain in the joint, it is absorbed much less readily, and constitutional effects gradually subside.

These cases and other considerations would suggest that any synovial or serous membrane which has been the seat of a chronic or sub-acute inflammatory action is less prone to be seriously and rapidly affected by a subsequent acute suppurative process, and this process is less likely to give rise to alarming general symptoms, than where the joint or serous cavity has been previously quite healthy. This may be explained on the assumption that the mouths of the lymphatics have been damaged by the previous inflammation, and are in consequence less capable of active absorption. Or possibly they may absorb the products and not the producers of the acute suppurative process.

In nearly all these cases absolute sleeplessness was a most marked symptom, out of proportion even to the amount of pain. It was always relieved by free drainage or irrigation, which suggests that it was due, in part at least, to absorption of poisonous materials from the suppurating cavity.

In all the cases in which continuous irrigation was tried there was immediate reduction of temperature, great relief to pain, and improvement in general and some of the local conditions such as to warrant its use in all such cases as had failed to recover under the treatment of free drainage. Continuous irrigation is a rational treatment, as it offers the most effective means of removing from the synovial sac the poisonous products of purulent inflammation as soon as they are formed. Such products left *in situ* most certainly do irreparable damage to the structures entering into the formation of the joint, besides acting as general poisons, and they cannot always be effectually removed by mere drainage. In the last case recorded, continuous antiseptic irrigation succeeded when very free drainage was hopelessly failing.

With regard to the position to be selected for drainage of the knee joint, an incision on the outer or, if necessary, on both sides of the patella is preferable to draining through the popliteal space. The latter position opens up layers of connective tissue along which pus may burrow, it unduly weakens the joint, the tube is liable to be compressed, and, if it is left long, it may cause damage to the cartilages by pressure. If the knee is so arranged as to allow the outer side of the joint to be a little lower than the inner, the position advocated will be sufficiently dependent.

In conclusion, I wish to thank Mr. Pemberton, Mr. Jolly, Mr. Chavasse, and Mr. Barling for permission to make use of their cases.

THE MANAGEMENT OF CHRONIC DISEASES OF THE HEART.

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(*Continued from page 22*)

Digitalis, I need not say, is far the most important of these. I speak of it for convenience as a cardiac tonic, and as such it is described in works on *Materia Medica*; yet I think that this term leads to the employment of *digitalis* under circumstances when nothing is to be gained by its use. When we have arrived at the conclusion that a patient is in danger of death from failing power in the heart, it seems only natural that we should seek to save him by the drug which, of all medicines, exercises the most powerful influence in increasing the vigour of the cardiac contractions, and so it has come to pass—at least as far as I can judge by my own observation—that *digitalis* is given in pneumonia and other pyrexial conditions when the sufferer's danger arises from failing heart; and yet I have never been able to see that in such cases it produces the smallest good effect. The rôle of *digitalis* is in organic diseases of the heart, and not even in all of these. The more frequent and the more irregular in force and rhythm is the heart, the more confidently can we prescribe *digitalis*. When the pulse is frequent and soft, but not irregular, and when the signs point to dilated left ventricle, sometimes, too, when we have dilated right ventricle sequential to emphysema, *digitalis* seems to increase the force of the ventricular contractions and lessen shortness of breathing, but not so conspicuously as in the over-frequent and irregular heart, whether this occur in connection with mitral disease, senile change, or failing hypertrophy. The tincture is the preparation which I almost invariably employ; and I think it is better not to order it in a mixture, but simply to prescribe it either in its purity or, to facilitate accuracy, mixed with an equal quantity of

spirits of wine, and to direct the patient to take so many minims mixed with a tablespoonful of water just before it is swallowed. I believe the drug is injured by being kept for days in aqueous solution. I think it is better to give pretty frequent doses at first ; I have given twenty minims every fourth hour night and day for three days, in a case of mitral disease, when the heart had become very frequent and irregular before the patient was seen, but twenty minims thrice daily for three or four days is, I think, generally sufficient. My rule is, when the pulse has fallen twenty or thirty beats, to lessen the frequency of the dose, and generally to stop the daily administration of the medicine when the heart is beating at the rate of seventy in the minute. Occasionally, particularly in mitral stenosis, it is desirable to bring it down to sixty. When we have the heart beating say about seventy, and with fair regularity, it is well to keep it so, and this may be done by giving twenty minims every second or third night. Some persons who have the failing heart of advanced life profit greatly by digitalis, but relapse quickly when they give it up ; and in such cases the continuous administration of a dose at bed-hour twice a week is often sufficient to keep the patient in comfort, and may safely be given for three months. It has been ascertained that when digitalis slows the action of the heart, it does so by prolonging the diastole. Now it is during the diastole that the secondary ill-effects are produced when the aortic valve is incompetent, as during that period the regurgitating stream of blood is falling back into the left ventricle, overfilling and gradually dilating it. For this reason the employment of digitalis in aortic reflux has been condemned. Having often seen breathlessness and cardiac distress relieved by digitalis in dilatation and failing hypertrophy, even when sequential to this form of valvular disease, I disregarded for several years the speculative objection, but clinical observation has since convinced me that under such circumstances the use of the drug should be tentative, as occasionally the patient is better without it.

Strophanthus shews its power, according to my observation, in the same kind of cases as digitalis, conspicuously when the systoles are very frequent and irregular, less distinctly when the pulse is regular and weak in dilatation of the left ventricle. I think the tincture of *strophanthus*, like the tincture of digitalis, should be mixed with water only just before it is swallowed, and I believe it may be given in rather larger doses than those commonly prescribed. Some time ago I saw one morning a gentleman with a pulse of 144, irregular to the last degree. He then began *strophanthus*, taking fifteen minims of the tincture every fourth hour, and the following morning the pulse was 104 and more regular, and there was a marked lessening of the distress of breathing under which the patient suffered.

My experience of these two valuable, and in many respects similar, drugs has led me to the following conclusions regarding them.

1. Digitalis is far the more frequently useful of the two.
2. If a slowing and steadying of the heart has been produced by digitalis, it is very often advantageous to keep up its action by an occasional dose, as already described.
3. There are some patients whom digitalis sickens, and a smaller number in whom, though the drug does not sicken, it nevertheless fails to bring about an increase in the force of the cardiac contractions, and in such cases we may often produce by *strophanthus* the effect which the older remedy was powerless to accomplish. I think patients who have wide-spread thickening of their smaller arteries sometimes benefit much more by *strophanthus* than by digitalis.
4. *Strophanthus* is much more rapid in its action, but is not suitable for prolonged use. In one case, in which during three or four days its good effect was conspicuous, the heart, under its prolonged use, became extremely frequent and the sense of cardiac distress extreme; and yet, when its employment was entirely given up for a week, it proved as rapidly and as distinctly useful as before.

The most striking effect which I have ever seen in rousing

a failing heart followed the administration, every fourth hour, of three doses of ten minims of tincture of strophanthus and a teaspoonful of brandy in a small cup of hot black coffee.

Caffein, I think, deserves to rank next as a cardiac tonic. I have, in a few cases, got undoubted help from it. They were all old cases in which digitalis and strophanthus had ceased to benefit; they were all aged persons; they were all short of breath and dropsical, and presented the signs of dilatation with degeneration of the ventricular walls. Four or five grains every sixth hour in pill, or, if the stomach is irritable, made effervescent by being mixed with a teaspoonful of the granular citrate of caffein and a wine-glass of water, is the mode of administration which I have adopted, and I have never given it for more than three days uninterruptedly. It sometimes causes a great increase in the secretion of urine, but is liable to the objection that some patients are rendered by it distressingly nervous and wakeful.

I do not know on what evidence the assertion rests that caffein, unlike digitalis, when it slows the heart does so by lengthening the systole; but if such be the case, we can easily understand that its continued use might be injurious. It is during diastole that the cardiac walls are nourished by the stream through the coronary arteries, and prolonged systole might seriously lessen their blood supply.

Bromide of potassium and the other bromides are not, I think, often prescribed for cardiac sufferers, and yet they at times greatly serve them. Many years ago a gentleman past middle life consulted me for an affection of the heart, from which he had suffered for several years. He was rather breathless, his pulse somewhat irregular, his feet a little swollen; and the physical signs led me to the conclusion that he had a dilated and somewhat degenerate heart. He was a man who had a good deal of mental work and worry. He had consulted many medical men, and he produced a prescription of Sir William Gull's which he was in the habit of taking for eight or ten days at a time, as he found it more useful than any other.

It was for a pill containing one grain each of digitalis leaves and mercurial mass, which he took at night, and a mixture which he took twice daily, and each dose of which contained five grains of bromide of potassium. Other physicians had given digitalis, and the evidence seemed clear that the bromide was the drug which rendered Sir William Gull's prescription the most appropriate. Several times since, when it seemed possible that cardiac irregularity was connected with disturbed innervations, I have seen moderate doses of bromide increase the regularity and force of the cardiac systoles very distinctly.

Alcohol does not, in my opinion, quite deserve the reputation it enjoys as a remedy useful for supporting a failing heart. Thinking over the patients who have passed under my observation with cardiac disease, I can call to mind very few occasions when they seemed to get relief from the so-called alcoholic stimulants. A small dose of brandy (from a teaspoonful to a tablespoonful) in some instances rapidly stops the distressing palpitation to which old people with degenerate hearts are liable. Some sufferers, too, from sinking feelings about the heart crave brandy; but I am not sure that its effect is generally to strengthen the heart, I think it is rather to soothe the nervous system; and I am satisfied that well-meaning attendants do more harm than good by too readily acquiescing in such requests. A little whisky and water, or a single glass of good wine, not infrequently enables a patient with heart disease to take and to digest his food better, but beyond this I have seen no good, and often harm, from their use. This is not the place to discuss the effects of alcohol, which I rather think is as intemperately decried by some as it is unwisely recommended by others. But, keeping to the point now before me, I am anxious to state my conviction that the physician should carefully watch the effects of brandy and wine in cases of chronic heart disease; for, while it often fails to support the heart, it is very likely to increase the patient's peril by adding to cardiac weakness hepatic engorgement.

There are two drugs which are recommended in most of the

works which treat of diseases of the heart as having a good effect in strengthening its action. I allude to *strychnia* and *atropia*, and about them I wish my opinion only to go for what it is worth. Strychnia at times helps the appetite of a sufferer from chronic cardiac disease just as it enables ailing people with other maladies to take their food ; but I never could see that it had any power of giving force to the ventricular systole, and in some cases of irregular systole it seemed to me to make matters worse.

"Belladonna," says Dr. Mitchell Bruce in his excellent Manual of Materia Medica, "is a valuable remedy in some cases of disease of the heart and great vessels when the indication is to empty the left ventricle quickly and relax the vessels without diminishing the cardiac force." In the face of such a distinct opinion I hesitate to speak too positively, but the result of my own observation is that—although belladonna, applied locally, in many cases lessens palpitation and cardiac uneasiness, and although the addition of atropia to morphia is desirable when hypodermic injections are used in cardiac cases—the internal administration of the drug does not give us any help in diseases of the heart.

Convallaria and *squill* sometimes increase the flow of urine, but I think we cannot rely on them to produce any appreciable effect on the force of the cardiac contractions. The same remark probably applies to *sparteine*, which sometimes sickens. Perhaps I have not given it in sufficiently large doses, but up to the present I have been disappointed by it, though of the efficacy of the broom itself in some affections of the kidney I entertain no doubt.

Arsenic, as a cardiac tonic, occupies an entirely different position to any of the drugs I have already mentioned. If it is useful, its effect is slow, and must, I presume, be referred to some effect on the molecular structure of the muscular fibre or on the ganglia by which the innervation of the heart is maintained. Dr. Balfour, of Edinburgh, specially recommends it in what he calls the senile heart, and other good observers seem to

have confidence in it as a nutrient tonic to the organ. I have occasionally given it for some weeks, but I did not see that the patients were any better than when they were treated by regulated exercise and easily digested food, with the aid of that invaluable medicine muriatic acid, given after meals to secure their digestion and prevent the feeling of oppression to which the subjects of heart disease are so liable.

Local heat is a valuable agent for rapidly rousing a failing heart, as anyone can see who has noticed the good effects of relays of very hot flannels laid over the chest in patients who had been kept for a lengthened period under anæsthetics during prolonged operations. Perhaps the heat, also, in the case of diseased hearts, helps, by drawing blood to the surface, to relieve distension of the cavities. Be this as it may, we should never forget the value of a large, light, hot linseed poultice in relieving cardiac dyspnoea. Some people think that it is by acting as a counter-irritant the poultice does good; but if we compare the relief given by a mustard leaf to that afforded by a hot poultice, we will, I think, be satisfied that the caloric is the more influential agent.

The aromatic spirit of ammonia and the *spirit of sulphuric ether* have long enjoyed a reputation as cardiac stimulants. Many sufferers feel a satisfaction in having at hand some kind of draught to be taken if they have breathlessness or palpitation, and, under these circumstances, ammonia, ether, and lavender prove convenient, pending the diagnosis by the physician himself whether the symptoms are due to over-distension, muscular exhaustion, or arterial spasm in front.

When a sufferer from heart disease is very ill, breathless, or dropsical, or when anginose pain comes when he tries to walk, no question arises as to *exercise*; the quieter he keeps the better. But in cases where a patient is readily put out of breath and gets uneasy sensations about his heart on exertion, the physician should not, without consideration, counsel the avoidance of exercise. If with these symptoms we find as physical signs feeble impulse and sounds, I have known great harm done by

the well-meant warning to lessen exercise, and have seen such men gain renewed strength and wind by a cautious return to their ordinary habits.

There still remains for our consideration in this connection the important subject of *cardiac dropsy*.

As I have already incidentally mentioned, everyone who has watched a number of patients with heart disease must have noticed that in cases apparently very similar, anasarca is sometimes an early and sometimes a late symptom. It is, I think, most frequently met with in the young, who suffer from mitral reflux, with congestion of the lungs and dilatation of the right side of the heart, and in some of the forms of dilated heart which we encounter in middle life. In the senile forms of heart disease dropsy is a late symptom and an ominous one. In all cases, however, in which it occurs, the conditions necessary for its production, as far as the heart itself is concerned, are probably defective driving power in the left ventricle and over-distension in the right cavities, and we must select our remedial measures according to whether the former or the latter condition seems to be the chief agent in its causation.

If we were compelled to have only one remedy for it, I have no hesitation in saying that remedy should be the old-fashioned pill of blue pill, squill, and digitalis. Yet I think sometimes one and sometimes another of the ingredients in the time-honoured Baillie's pill is unnecessary, and that a careful consideration of individual cases may lead to the selection of more efficient drugs or combination of drugs. It is very seldom, if ever, that the urine of a patient with cardiac dropsy is not albuminous, and the first care of the physician should be to ascertain whether the albuminuria is due merely to venous congestion of the kidneys or to any of the forms of Bright's disease. Mercury, of such signal value in many cases of anasarca due entirely to disease of the heart, must be carefully avoided if there is independent renal change. The deep colour and high density of the urine in uncomplicated cardiac dropsy contrast so strongly with the pale colour and low density of the

fluid in all forms of Bright's disease, that the question may generally be determined by an observation of these appearances alone. In both we may have granular tube-casts, but the discovery of small casts studded with bright refracting granules would suggest the presence of independent kidney disease, and the necessity of care in the employment of mercury. In cases of cardiac dropsy, when we have the kind of pulse which I spoke of as indicating the use of digitalis, that drug will sometimes suffice to increase the secretion of urine and clear away the oedema and serous effusions; but if the urine is not only scanty but turbid with lithates, it is better to give with the digitalis the salts of potass, the spirit of nitrous ether, and buchu. In some cases of old-standing heart disease, when the patient has taken digitalis at times for years, it is sometimes necessary to give the drug for many days, and in rather free doses, before there is an increase in the secretion of urine. I have seen a great increase in the urine occur quite abruptly after two or three weeks of treatment, and when I was beginning to fear the digitalis would not succeed. If with this sudden augmentation of the renal secretion we find a marked slowing of the pulse, I think there is saturation of the system with the drug, and it is safer to stop it for a day or two, or at all events to lessen the dose.

Sometimes, especially in elderly men, we find great and firm oedema of the lower extremities and of the cellular tissue of the abdominal parietes and loins, with scanty urine and a slow and regular pulse. At the same time there are usually signs of the weeping of the serum of the blood into the pleural sacs, with cough and breathlessness on exertion. The urine is rather deep-coloured and somewhat albuminous. There is no cardiac murmur; but the physician, on applying the stethoscope, is conscious rather of impulse than of sound during the systole of the ventricles. The signs point to hypertrophy, and after death we find a thick-walled and but slightly dilated heart. The muscular tissue does not appear to have undergone degeneration. Failure in the force of the ventricular contraction has, no doubt,

contributed to the dropsy, but potent contributory influences have been diseased arteries, and probably also changes in the veins and lymphatics. The drug which does most good to such patients is *calomel*—one or two grains mixed with three or four of sugar of milk should be given thrice daily an hour before meals. Usually the calomel not only increases the flow of urine, but keeps the bowels open. If it fails to do this, a very effectual remedy is four to six drachms of sulphate of magnesia, dissolved in the smallest quantity of hot water which will suffice, and administered early in the morning. If the patient refrains from fluid and merely sucks a piece of lemon, or at most takes only a small cup of warm tea, the abundant watery discharge from the bowels is followed by a great sense of relief to the breathlessness.

When with the group of symptoms I have described I have found a thickened and rather resisting radial artery and signs of bronchial congestion, I have, instead of calomel, used iodide of potassium with good effect. In cases of long standing, where our usual remedies have lost their influence, caffeine (as already mentioned) and sugar of milk sometimes markedly increase the urine. If we employ the latter, we must give three or four ounces, which should be dissolved in a tumbler of water and used during the day as drink. It has the disadvantage of making the patient thirsty, and as it is desirable that sufferers from cardiac dropsy should limit as far as possible their consumption of fluids, anything which increases thirst is so far objectionable. If our medicines fail and the limbs become greatly swollen, they must be punctured. Though the danger of erysipelas as a result of the puncturing is often spoken of, I have never seen it brought on by this operation; but then I have generally had recourse to it before the tension of the skin had produced erythema, and I have always taken the precautions of placing the patient comfortably in a chair and of having the swollen limbs washed and oiled before using the needle. If this care is taken, and if the dropsical parts are swathed in warm flannels, which should be changed as often as they become

saturated, no harm will, I believe, ever result ; and certainly the puncturing with a round sewing-needle has always appeared to me much less painful than the use of the capillary trocar, which some of late years have adopted.

Restlessness, breathlessness at night, and sleeplessness are symptoms which at times inconceivably distress the subjects of chronic heart disease, and are apparently due to irregularity in the supply of blood to the nervous centres. Patients may be fairly comfortable during the day, but when the usual hour of sleep arrives, the breathing becomes short and they dread to fall asleep, knowing that a brief period of sleep will be followed by an alarming fit of dyspnœa. Sometimes if they abandon all idea of going to bed and fix themselves for the night in a chair, the difficulty of breathing may be averted. An easy chair, with an almost straight back and very slightly elevated, so that the feet and legs of the sufferer may be stretched well out, and with arms which well support him, will sometimes enable the patient to get through the night without much distress ; and I have known men who had passed eight or ten nights in this way until some temporary aggravation of their malady had been tided over subsequently live for years. When, however, cardiac dyspnœa is of that kind that the subject of it must sit up with his legs falling straight down from his body, his arms crossed in front on a bed-table, and his head resting on his arms, the end is generally not far off.

If we cannot succeed in relieving nocturnal breathlessness by the *erect posture* alone, we may often do so by placing the patient in his chair, enveloping him in a loose dressing-gown, and having a large, light, hot poultice applied on the front of the chest. Sometimes, too, a little *hot wine and water*, or hot spirits and water, will prove a valuable addition to the measures I have described. These measures may appear mere incidents of nursing hardly worth mentioning, but I speak of them because I have seen an arm-chair and a hot poultice secure several hours of sleep for a sufferer who had on previous nights been uselessly dosed with the so-called sedatives and antispasmodics.

If these means fail, and if the case does not present indications for the application of leeches, the proper remedy is the *hypodermic injection of morphia and atropia*. I think it was Dr. Clifford Allbutt, formerly of Leeds, who, in a paper in the *Practitioner*, first pointed out the safety and the efficiency of this procedure in diseases of the heart, and since then it must have proved of inestimable value in relieving the suffering and prolonging the life of many a victim of disease of the heart. The use, however, of the remedy requires a good deal of caution in regard to the dose, as a small one sometimes produces a great effect.* It is well to use a dilute solution, and I think even in an adult it is safer that the first injection should not contain more than one-eighth of a grain of sulphate of morphia and two hundred and fortieth of a grain of sulphate of atropine. If the first night this proves insufficient the quantity can be gradually increased, but in heart cases I have never found it necessary to use the large doses of morphia which are required to relieve painful diseases. To maintain comfort, however, it is commonly required to increase the dose slightly each night for a week or ten days, after which it can often be gradually reduced.

If circumstances make it impossible to have the hypodermic injection made at bed-hour, the introduction of a *suppository* containing a quarter of a grain of morphia at three or four o'clock in the afternoon, or the administration of fifteen or twenty minims of *nepenthe* an hour before the usual time of sleep may succeed, but neither is comparable to the hypodermic injection.

* The solution which I have used for twenty years contains :—

Morphinæ sulphat., gr. iv.

Chloral hydrat., gr. ii.

Liq. atropinæ sulphat., min. xii.

Aquæ camphoræ, ad. ℥iv.

The chloral is added merely to make the solution keep ; it renders the injection slightly painful, and may be left out if the quantity ordered is likely to be used within two or three weeks. Ten minims contain—

Morphinæ sulphat., gr. $\frac{1}{4}$.

Atropinæ sulphat., gr. $\frac{1}{40}$.

But eight minims is a suitable dose for a first injection in a cardiac case.

Sulphonal and *paraldehyde* have occasionally proved useful in my hands, but generally in cases in which, although the patient had heart disease, it was not the cardiac distress, but anxiety or nervous irritability, which banished sleep. *Chloral* should, I think, be avoided in cardiac cases.

A temporary aggravation of the cardiac patient's suffering in consequence of *abnormal arterial tension* has long been recognised. When present this brings on palpitation, præcordial oppression, breathlessness, and in some cases anginose pain ; and when summoned to a patient with any of these symptoms, if we find a resisting pulse and a sharp second sound in the aortic area, we do well to try the remedies which lessen arterial spasm. The breaking of a capsule of nitrite of amyl under the patient's nose, or the administration of one of the compound trinitrine tabloids, generally gives great relief. If, however, as occasionally, though rarely happens, we find in chronic heart disease, an aggravation of the cardiac oppression associated with cooing and wheezing râles in the chest, iodide of potassium should be employed, unless there is intolerance of the drug, and I think frequent small doses, say two grains, every third or fourth hour for a day or two is the best way to use the medicine.

During the past year several papers have appeared dealing with the important subject of the nature of angina pectoris. One of the most interesting of these is from the pen of Dr. Lauder Brunton, to whom we owe so much for the introduction of nitrite of amyl. He endeavours to show that anginose pain in the heart resembles the pain produced by the fruitless efforts of a distended bladder to overcome an obstruction to its outflow, and that just as in the case of a distended bladder sometimes weakness in the muscular fibres of the organ and sometimes the completeness of the obstruction constitutes the chief cause of the pain, so the main element in the production of angina is sometimes peripheral resistance and sometimes inherent feebleness in the left ventricle, and that this consideration should enter into our choice of a remedy.

My own experience is entirely in accord with those observers

who state that anginose attacks, which only come on when the patient makes exertion, and especially when he makes exertion on a cold day by walking against the wind, are the least dangerous. In these cases the exertion produces peripheral resistance, and it is only when this obstacle is opposed to the outflow of blood from the left ventricle that the pain occurs, the ventricle being adequate to empty itself in favourable circumstances. Attacks, on the other hand, which come without provocation, usually indicate an extreme degree of organic change in the heart. In two of the most rapidly fatal cases of angina which I have ever seen, the paroxysms occurred without provocation; they were both in members of our profession, and neither were advanced in years. One died while in bed, and the other in the waiting-room of a railway station. In the former, the heart was found empty, its structure extremely soft, and much more advanced in decomposition than it should have been at the time the body was opened; in the second, a friend under forty years of age, the greater part of the heart seemed quite healthy, but a small clearly-defined portion of the left ventricle was pale and so soft that it seemed difficult to understand why rupture had not occurred, and the coronary artery from which this segment should have derived its supply was almost completely blocked by atheromatous narrowing.

Where peripheral resistance is the dominating element in the causation of the pain, the inhalation of nitrite of amyl, or the administration by mouth of the compound trinitine tabloids, usually gives prompt relief. As auxiliary measures, the old-fashioned treatment by putting the hands in hot water and giving the patient a little very hot brandy and water should not be forgotten. When amyl and nitro-glycerine do not relieve distinctly, I think we should not continue their employment, but direct our attention, if haply there is any hope of doing so, to the strengthening of the heart itself. Unfortunately, experience has shewn that the direct cardiac tonics are not useful in ordinary cases of angina. Digitalis, in consequence of its influence in contracting the smaller arteries, probably does harm

instead of good. Arsenic and phosphorus are recommended, but neither from them nor from cocaine—which about two years ago was confidently recommended—have I seen good effects. In these cases—I mean in these in which profound failure in the propelling power of the heart is the real cause of the pain—avoidance of exertion and the careful nourishing of the patient, with a moderate allowance of brandy or wine, must be our chief resource.

There are, however, certain cases of angina in which we may achieve a great success by the use of iodide of potassium. In 1885 a retired officer, sixty years of age, consulted me for well-marked attacks of the less dangerous form of angina. The seizures had occasionally come on when he was quietly sitting in his room, but were immediately provoked by walking, and he was obliged to use several capsules of nitrite of amyl daily. He was rather florid, but healthy-looking, and I could not detect any evidence of either cardiac or arterial disease. Phosphorus, which had been prescribed in London, had not benefited him; but under iodide of potassium, at first in five and subsequently in ten-grain doses, he lost the attacks; and I happen to know that, though six years have elapsed, he remains well, and walks as actively as he ever did. The same drug deserves, I think, a trial in some other obscure cardiac troubles. Nearly ten years ago I saw a gentleman who, although leading a model life, suffered from time to time from alarming attacks of palpitation, one of which lasted seventy hours. At first I could not detect the slightest sign of disease, but after some months a diastolic aortic murmur became audible. My remedies failing entirely to avert or shorten the attacks, the patient went to London, where the aortic disease was at once recognised; but it was believed by the two excellent physicians who saw him that digestive derangement must constitute the immediate cause of the attacks. A careful dietary, with stomachic medicines, however, did no good, and the patient had given up in despair his search for a cure, when an old doctor, who had attended him many years before, suggested to me that possibly the lesion

might be syphilitic; and whether the theory were correct or not, iodide of potassium, administered in full doses, was productive of marked lessening in the frequency and duration of the seizures.

Aggravation of cardiac symptoms from reflex causes is chiefly found to arise in connection with overloading of the stomach, or a distended condition of the large intestine. Although I speak of the influence on the heart, in these circumstances, being reflex, it is very likely that it is to a great extent mechanical—an overloaded stomach or colon pressing upon and preventing the diastole of the right ventricle. If it is the stomach which is loaded, an emetic sometimes saves the patient's life, and tepid brandy and water I have seen secure this object safely and effectually when I hesitated to employ a medicinal emetic.

Palpitation immediately due to flatulence is, I think, not common in persons who have chronic disease of the heart. They often, it is true, feel that if they could get up wind it would give them relief; but it is not often that one can verify by percussion the distension of the stomach by gas, and it is probable that the sensation is really due to overfulness of the gastric veins as a part of the general distension of the venous system, and to be relieved by a dose of calomel followed by a saline rather than by carminative drugs. Severe cardiac dyspnoea, however, I have seen immediately cease on the passage of a large solid stool when the action of the bowels had been neglected.

Palpitation and breathlessness in the subjects of heart disease due to impulses reflected from the utero-ovarian organs, are best met by bromide of potassium, sumbul, and camphor; while disturbances of an emotional kind must be averted, as far as they can be averted, by the discretion and watchfulness of the patient's family.

The last contributory cause of suffering in cardiac cases which I mentioned was an unhealthy condition of the blood. If this is due to organic disease of the kidneys, I fear we have no

remedies which do much except in so far as those I have already spoken of will relieve arterial tension. Without entering on a speculative discussion as to the possibility of eliminating urinary impurities by acting on the skin, either by means of the hot air bath or by pilocarpine, I will only say that I have not myself observed any relief from such proceedings, sometimes rather an increase in the patient's discomfort. A free action of the bowels, however, does sometimes produce a beneficial effect.

In the gouty we occasionally find that the addition of colchicum in small doses increases the efficacy of other medicines in removing intercurrent palpitation.

The value of chalybeate preparations in the management of chronic heart disease is not infrequently mentioned, yet when I look back to the patients who have passed through my hands I can recall very few where any good came of giving iron, and some where the palpitation and breathlessness were considerably less when the administration of iron was discontinued.

I am sorry that this Address has not been more worthy of your attention, but I will say this, that when I have spoken of remedial measures as useful or useless, I have not merely repeated the opinions of others, nor recommended the employment of medicines on speculative grounds, but have given you the result of my own observations at the bedside of the sick, and have endeavoured to supply, as far as I could, the indications for the choice of one remedial agent rather than another *precisely*. It is well to do this, for vague recommendations are of little value, and, as was long ago said, "truth is more likely to emerge from error than from confusion."

MEDICAL NOMENCLATURE.*

BY ALFRED HARVEY, M.B.

IT is a commonplace that the little bothers of life, continually repeated, are far more irritating to the nerves, ruinous to the digestive system, and generally destructive of happiness in life than are great calamities; that the wicked flea is, on the whole, in our climate, an enemy more to be dreaded than the roaring lion. And there is one petty annoyance of this kind, greatly on the increase, about which I intend to grumble to-night, in the sure and certain hope, if I may be permitted that "Irish barbarism," that I shall receive your heartfelt sympathy; the more in that I take this particular opportunity to unburden my soul because the evil touches us in our corporate capacity as readers of medical books. This evil, which has caused many thousands of our professional brethren to give up in disgust all attempts to keep abreast of the medical literature of the day, is, as I need hardly say, the dreadful terminology our modern writers, especially English writers, adopt.

These awful words already lie on our shelves thick as autumn leaves in Vallombrosa, and they are still being poured into the language fast as gallons of water pour over Niagara, or as revolutions occur in the South American Republics. They are, I am told, fondly imagined by their parents to be of Greek origin. If they had been, and that had been all the grievance—though even then it would be a perfectly legitimate one—I should in silence have deplored the deficiencies of my early education, and have carried Liddell and Scott in my waistcoat pocket as my constant companion. But to the man who has some acquaintance with Greek the difficulty is greater, as to him the language is not simply *un*leading, but in many cases absolutely *mis*leading, full of barbarous hybrids, and severely unclassical always.

* An Address delivered to the North Birmingham Medical Book Society.

With the commencement of our medical studies, poor unfortunates, the trouble begins. I am sure that such words as *parapophysis*, *neurapophysis*, *schyndelysis*, frighten off far more students from the study of anatomy than do the fancied horrors of the dissecting-room. Physiology continues the evil, which grows as the student becomes familiar with books on general medicine and surgery. But it is only when special treatises are read that it is felt in its most acute form; and the more recently the specialty has been chipped from the parent block of medicine or surgery, the more does the specialist find it necessary to consult his dictionary, to pour forth in torrents his sesquipedalian hybrids, either to astonish our eyes or to obfuscate our intellects, equally on the principle, "*Omne ignotum pro magnifico*."

Ophthalmic surgical literature is commendably free from this blot; it is not blameless in the matter, but its *slang* is not extensive, and the words composing it are both concise and derivable. In midwifery and gynæcology it seems necessary for a man to justify his existence by inventing either a name or a pair of forceps or a pessary respectively; this is bad, but still there is an alternative, and if the latter is chosen we are not compelled to use it; truth compels me to state, however, that some men so far forget themselves as to invent both; among these Robert Barnes, and what is worse in his case he fails to use them strictly. Thus with him a pluriparous woman is one who has borne more than one child, yet pluriparity relates to the condition of twin pregnancy.

The writers on diseases of the skin are an accursed race, for they invent a fresh name for every little pimple or spot that appears, but these are beside my subject, as they proceed upon a different *rationale*, and prefer to give in words that have a savage and aboriginal sound rather than a classical.

The specialists upon nose, ear, and throat have not as yet done much, though it was in a book on the nose that I met the most remarkable word I know (*aproxexia*); but it is the neurologists who, having no pessary as a safety valve, have

thrown all their energies into the construction of the Medico-Grecian tongue ; in this speciality even a book for students turns out new words at the average rate of seven to a page. There is a little relief even here—some few, a very few, are amusing—take, for instance, the words brachio-plegia and ophthalmoplegia. The first, if it means anything, means a blow straight from the shoulder, while the second means one in the eye, but I have never yet heard that the two pathological conditions stand in relation of cause and effect.

The whole business is appropriately played down to its lowest depth by the advertising pharmacutists with their sham scientific terms, *e.g.*, antifebrin, evidently the active principle of the antifeber plant, and bromidia, which, no doubt, on the analogy of quinine and quinidia, is with bromine an alkaloid derived from *bromum officinale*, the common broom.

Apart from the question whether it can ever be really necessary to say in *good* Greek what can be better expressed in English, there are several ways in which our Greek nomenclature in medicine is *bad* ; and most words are so fearfully and wonderfully made that they err in almost every one of these ways.

The first is the simple hybrid. This is often unobjectionable, except from the point of view of the purist, and may well be treated with leniency by such a hybrid race as our own ; it is generally intelligible, and is often even better than the more correct but pedantic term ; certainly *vaginitis* is better than *colpitis*, probably *ovariotomy* than *oöphorectomy*.

The next vicious method is due to a total ignorance on the part of the writer of the language for which he is presuming to invent words, and a consequent nomenclature by false analogy, a process often seen in every-day life. For instance, when the well-named Great Western Arcade was prolonged to the S.E., the extension was called the North-Western. The further proposed extension was to have been "Midland ;" and I have no doubt that any new development would have been "Brighton and South Coast," or "Chatham and Dover." As an instance

in medicine, take the word "endothelium." The term epithelium—not a good name, but still not very objectionable—had been given to cells covering parts communicating with the outer air. Then an observer sees somewhat similar cells lining internal portions, and proceeds to name them, and reasons in this fashion : Epithelium, the thelium upon surfaces ; *ergo*, endothelium, the thelium within. Unfortunately, the mischief does not end here. Epithelioma soon became a recognised form of tumour ; and now, within the last few weeks, we hear not only of endothelioma, but of a generic group, the theliomata. Now what can we, the uneducated in the most recent developments of pathological nomenclature, make of that word but nipple-tumours ? A more amusing instance is one I remember to have met where the word encephaloma was used to denote not a hernia cerebri, or an encephalocele, but an encephaloid cancer !

Another mode of error is when the word chosen conveys an erroneous meaning, either because it is the wrong word absolutely, or, being the right word, yet leads the mind to jump to a wrong conclusion. Describe carefully to an educated layman the two conditions 'paraplegia and hemiplegia, avoiding any use of these terms ; then ask which of the two conditions is paraplegia. There is no doubt that he will rightly name the wrong one. Of course to us the words have become so customary that each calls up the correct idea at once, without any need of translation, but they are bad nevertheless. As an instance of the converse error—of a correct word leading the reader astray—take the words nyctalopia and hemeralopia. When some poor pedant for our benefit translated those unintelligible words day-blindness and night-blindness into these terms, his Greek was correct ; but he failed to allow for the habits of the human mind, and hemeralopia was more frequently than not interpreted day-blindness instead of day-vision, *ergo*, night-blindness, and the words had to be amended into heme-alanopsia and nyctalanopsia, of which more anon.

Then again the term may imply a theory, which is probably

erroneous, and at all events open to contradiction. Of course any system of nomenclature is open to this at times, and that is why in the present state of knowledge clinical terms are better than pathological, and the naming of a disease after its discoverer or describer has its advantages, though even here a theory may be inferred, as the popular one that "Bright's Disease" is so called because John Bright died of it,

Lastly, nomenclature may be bad through pure pedantry. A name may be good Greek enough, though not to be found in the dictionary, but utterly meaningless to the average reader. Such is hæmato-colpos : such too are achno-mycosis and synugomyelia. Had the two last names existed when Oliver Wendell Holmes wrote the "Guardian Angel" he would probably have employed them as names for the twins instead of the far less high-sounding Isosceles and Helmenthia.

But suppose these words were good, definite and, with the help of a dictionary, intelligible, what useful purpose do their coiners claim that they serve ? (By the way it is interesting to note that in common life the word coiner always applies to a false currency). I take it that their purposes are supposed to be two : that such a terminology is a gain to the foreign student in perusing our literature, and that it is a gain to ourselves in saving time and space, and in definition. With regard to the first, if it were proposed to introduce again a universal language for science, much might be said for it ; but what can it profit, say a German who is imperfectly acquainted with English, if in addition to the inherent difficulties of our tongue he has to grapple with a bastard Greek. If on the other hand he is so well acquainted with our language that it is worth his while to read it, such words as colpo-cleisis, stenotic dystropho-neurosis will scarcely help him. Further, the certainty that every thing good will be translated makes the perusal of foreign literature unnecessary to the many, whether here and in America, or on the continent.

There remains the question whether a label is better than a periphrasis, whether we gain in economy and definition. I

will allow at once that that is true of a few short and simple words that have become part of the language and have acquired definiteness, *e. g.*, hemiplegia, laryngitis, cancer, etc., but it is true only of a few.

A charming writer and an enthusiastic yachtsman, speaking of the weariness of sailing to one without the nautical instinct, says, "You cannot speak of anything on board without employing technical terms, which, however necessary, however unavoidable, will seem to him a foolish and useless affectation by which the amateur tries to give himself nautical airs. If you say the 'main-sheet' he thinks you might have said more rationally and concisely 'the cord by which you pull toward you that long pole which is under the largest of the sails,' and if you say the 'starboard quarter' he thinks you ought to have said in simple English 'that part of the vessel's side which is toward the back end of it, and to your right hand when you stand with your face looking forward.'" Well, though said in jest, this applied to medicine is true; it is the truer economy for the author by using a few extra words to save his readers cudgelling their brains, or being driven to dictionaries; every word that does not at once call up the writer's intended meaning in the mind of the reader is a wasteful mistake (and in this relation it is well to remember that these inventors do not use their language among themselves; on the contrary, like the Roman augurs, or the pet of the modern music hall, they wink the other eye). Then, in many cases, the English expression is not only virtually but actually more concise than the Medico-Greek term; day-blindness is not only easier of comprehension, but actually shorter to speak or write than hemeralanopsia; and in many cases the author has to put his English equivalent in parenthesis.

There is one word, perhaps the most remarkable word in a very remarkable language, introduced to us by Dr. G. McDonald, which actually needs a long footnote to explain its derivation and meaning: this word is *a-prosexia*, or, as McDonald prefers to spell it, apro-sexia. The only ideas it

calls up in the mind are the carving of the wild boar, or the sexual relations of the same animal, but the *i* instead of *u* in the penultimate forbids either of these. On referring to the foot-note, we learn that the derivation is from *ἀπὸς ἐχειν*, and it simply means "inability to fix the attention," so that half a dozen lines are occupied to avoid the use of five simple English words. Apart from this, the word is an interesting specimen, for the root is not *εξ* but *εχ*, as in *synecchia*; and, to the best of my knowledge, the Greeks never prefixed the *a* privative to a prepositional prefix. Since this was written, the original inventor of this unhappy word—a Dutchman, I am thankful to say—has published an article in the *Practitioner* apparently with the sole object of foisting it upon an inoffensive British public.

It is easy to criticise, you will say, but what can I suggest that is better? Well, at present we should use simple English when possible. If a new word is necessary, use Latin rather than Greek—e.g., *circum-lental* is at once more English, more classical, more correct, and more intelligible than *peri-lenticular*. Let us use, though sparingly, such terminations as *-itis*, *-oma*, whose signification is fixed, avoiding *-oid* and *-algia*, whose sole use is to mystify the laity, which is not the highest ambition; and let our writers always bear in mind, "*Ars longa, vita brevis*"—

"The life so short, the craft so long in learning"—

and not add to the inherent difficulties of the study of our profession by placing adventitious obstacles in our way.



NOTE ON THE USE OF PILOCARPINE IN
DERMATOLOGY.*BY ROBERT M. SIMON, M.D., M.R.C.P.
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THOUGH G. Simon in 1879, and Pick in 1880, published important papers on the "Therapeutical Use of Pilocarpine in Diseases of the Skin," there has been no notice of its employment in England except in alopecia areata

In November, 1890, Dr. Klotz read a short paper on "Pilocarpine in Dermatology," and, though his personal experience was limited, spoke in the highest terms of its value; but it is a matter of wonderment that the American Dermatological Association, before whom the paper was read, seemed to be unable to discuss it from lack of experience of the use of the drug. There is abundant *a priori* reason for expecting benefit from its use in cases of great thickening of the skin, such as chronic eczema or scleroderma.

Of the latter disease I have had no cases; and though it does not fall to the lot of a physician to a general hospital to see many cases of very chronic eczema, I have tried pilocarpine in a few with the happiest results. It has been objected that it is a drug requiring heroism to administer, and great care in its administration. If, as is indeed the case, this be so, it can be replied that we want to use pilocarpine only in cases in which other remedies are useless, and our patients often in very great distress.

Such was the case of S. P., a small publican, who came under my charge after having spent much time and money at Harrogate and elsewhere in trying to get relief. For fifteen months he had had eczema, and suffered acutely from the itching and distress dependent upon it. Nothing had given him much

* Read at a meeting of the Pathological and Clinical Section of the Birmingham and Midland Counties Branch of the British Medical Association.

relief. He was ordered bran baths, and a lotion containing half an ounce of liquor carbonis detergens to a pint of lime water, while liquor arsenicalis with small doses of iodide of potassium were given internally. When I saw him his skin was enormously thickened and pigmented by the protracted inflammation, and I held out to him no hope of improvement until the thickening had been absorbed. To effect this, ointments containing salicylic acid were tried, but without much result; so on March 5th, 1891, he was admitted into the General Hospital to try subcutaneous injections of pilocarpine. The dose employed was at first one-eighth gr., and subsequently one-sixth gr., twice daily.

There was very little sweating at first, but a good deal subsequently; otherwise beyond relief to the itching no obvious results were noted, but gradually the skin got thinner and the irritation less. He had to leave the hospital on April 2nd for business reasons, but was readmitted on June 9th. The same treatment was adopted, and on July 8th he was again discharged as he felt so very much better.

Two months ago I received a very grateful letter from him saying that he was quite well, and that his skin was normal. He had altogether 110 injections, but never suffered local or general discomfort therefrom, and though the course of treatment may seem to have been very prolonged, and to be one requiring great patience both on the part of the patient and the doctor, it must be remembered that we know no other remedy which could be expected to produce anything like, if indeed any at all, so good a result.

Pachydermatous conditions are always serious, and though local complaints may fairly easily be dealt with, a general diffuse chronic inflammation of the skin has hitherto been almost beyond the power of medicine to deal with. The difficulty of applying keratolytic agents over a large surface are almost insuperable, and the advantage is not commensurate.

For the relief of prurigo senilis I have found nothing so useful as the hypodermic injection of pilocarpine, and, though

the relief is only temporary, to a patient worn almost to death by itching and sleeplessness, a few days respite is a glimpse of heaven. In psoriasis I have met with no good results from the use of pilocarpine, and, in subacute eczema, with bad ones.

REPORTS OF CASES.

BY C. E. PURSLOW, M.D. LOND.
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Case of Retroversion of the Gravid Uterus.—R. H., æt. 27, admitted at 6 p.m. on November 14th, 1891, with the following history. Has had four children, no miscarriages. Last child nineteen months ago.

Menstruated last on August 1st, and pregnancy continued with no abnormal symptoms until yesterday, when at 2 p.m. she tried to pass water, and found that she could not. She had passed water without pain or inconvenience of any kind at 11.30 a.m. on that day. From 3 p.m. on that day until admission she had a constantly increasing desire to micturate, but was totally unable to pass any urine. There had been no dribbling. She had never experienced any previous difficulty in micturition, nor had she had any bearing down or dragging pains.

On examination of the abdomen, there was a fluctuating tumour in the middle line, tender to the touch and reaching up to the umbilicus. On vaginal examination, the os was found to be high up and in front, immediately behind pubes and looking forwards, and in the posterior cul de sac was a large rounded doughy swelling filling up the posterior part of the pelvis, and still more easily felt on rectal examination.

A male gum elastic catheter was passed and 50 oz. of urine withdrawn, which was clear and not ammoniacal in odour. After the withdrawal of the urine the abdominal tumour was

found to have disappeared, but the swelling in the pelvis remained the same.

An attempt at reposition was now made with the fingers in the vagina and subsequently with the finger in the rectum, but without avail. The patient was then placed in the genu-pectoral position, and on examining her it was found that the uterus had completely gone back into its normal position, the os looking well backward and the fundus being plainly felt above the pubes. The next morning the patient passed water easily, and the catheter was not again required.

She was kept in bed four days, being cautioned against lying on her back, and lying either on face or side. A large elastic ring pessary was then inserted and she was allowed to get up, and next day went home. She has since attended as an out-patient, and has had no further difficulty with micturition or pain or discomfort whatever.

The points of interest in this case appear to be, in the first place, that the sudden onset of the symptoms, without any previous history of pelvic trouble, seems to shew that the retroversion occurred in a uterus which was already pregnant, and that the condition was not due to pregnancy taking place in a uterus already retroverted, as is said to be usually the case. The absence of any history of previous miscarriage is also against the supposition that the retroversion had existed previously.

Secondly, as regards the treatment. Playfair, in his treatise on midwifery, advises reposition by indiarubber bags in the vagina or rectum, and if that fails, the administration of chloroform and the introduction of the hand into the vagina or rectum to exert pressure; and with reference to the treatment by position, says: "Others recommend the hand and knee position as facilitating reposition, but this prevents the administration of chloroform, which is of more assistance than any change of position can possibly be."

I would urge that replacement in the genu-pectoral position should in all cases be tried before having recourse to anæst-

thetics, as it is absolutely free from risk, and in some cases, as in the one under consideration, strikingly successful.

Incomplete Abortion; placenta retained three weeks in uterus without giving rise to hæmorrhage.—E. S., æt. 38, admitted to Queen's Hospital with the following history :—Married sixteen years, eight children, two abortions.

Three weeks ago patient aborted at about the fourth month of pregnancy. She was not attended by a medical man. Patient states that the child came but no after-birth or membranes, though the discharges were carefully inspected. She remained in bed one day. She has had no hæmorrhage, but during the last few days has had a discharge, which she says had an offensive odour. Has had no pain, and general health has been good.

On examination, uterus anteverted, fundus considerably enlarged, os patulous, external os admitting finger, which will not however enter uterus, slight yellow discharge.

The increased size of the fundus, together with the discharge, seemed to shew that patient's story was correct, and consequently, under anæsthesia, the cervix was dilated with Hegar's dilators, commencing at No. 11 and going up to 23. Each dilator passed in four inches. After dilating, the finger was passed into the uterus, and the placenta could be felt attached to fundus and posterior wall. It was detached as much as possible with the finger, and removed by finger and forceps. The uterus was washed out with hot water, and the vagina packed with iodoform gauze. It was necessary to draw off the urine with the catheter twice after the operation, but with that exception patient made a normal recovery.

According to Spiegelberg, cases in which the placenta is retained without hæmorrhage are rare, though some are recorded in which it has remained quiescent in the uterus a much longer time, in one case five months. In these cases it is usually found that the whole placenta is retained, and remains firmly attached to the uterine wall. As regards treatment, the main question is as to the wisdom of interfering. In this case the

onset of an offensive discharge led us to interfere actively, but in cases where absolutely no symptoms arise, an expectant line of treatment would probably be better, bearing in mind that while the placenta is in the uterus, the patient is in danger from either hæmorrhage or septicæmia.

NOTE ON CONGENITAL RICKETS.

BY GILBERT BARLING, B.S., F.R.C.S.
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THE existence of true congenital rickets has been denied. Such cases as have been described are generally classified as examples of sporadic cretinism. The following, however, appears to be an illustration of true rickets arising in the foetus without the association of the cretinoid condition.

L. D., aged six months, sent to me by Dr. Shillito, was the second child of a healthy young woman, who, in the second month of her pregnancy, suffered from a severe attack of influenza. Directly after birth, and ever since, the child has been subject to profuse sweating, especially during sleep, and she has also suffered from bronchial and intestinal catarrh. The hair is dark and abundant, the anterior fontanelle is very large, and the frontal eminences are very marked, otherwise the head is well shaped. A week after birth the right humerus broke spontaneously, three weeks later the left leg bones also broke, and a fortnight later the left humerus, but all these bones have united again. At and since birth the thigh and big bones of both extremities have been noticed to be unusually curved forwards and outwards, and there is shortening of the left femur, with thickening at the upper part, which indicates that it has been fractured: probably this happened before birth. There is no nodulation at the junction of the ribs with their cartilages, nor is there enlargement of the epiphyses.

There is no mental dulness, such as cretins shew; on the contrary, the child is unusually bright and intelligent, laughing

and taking notice of objects around it. Examination of the neck shews no abnormal condition of the thyroid gland, the subcutaneous fat is not greater in quantity than is generally found in children of this age, and there is no formation of the fatty pads in the neck such as are found in cretins.

PERISCOPE.

SURGERY.

BY GEORGE HEATON, M.B., F.R.C.S.

Catgut Infection.—C. Brunner (*Beitrag. zur klin. Chirg.*, Bd. vi.) gives an interesting account of the different methods of manufacture of catgut for surgical use, and the means of preserving such catgut.

Instances have been recorded by Kocher, Zweifel, and others in which infection of wounds has been traced conclusively to catgut prepared in the ordinary way with carbolic oil. For four years, in the Zurich clinic, careful search has never traced such infection to catgut prepared 'with sublimate. Similar results have also been attained by Sanger, Crede, and Crarioso in the use of such catgut in Cæsarian section.

As to the absorbability of catgut prepared by different method, Brunner finds that all methods of preparation render the catgut less easily absorbed but in different degrees. Where suppuration occurs, sublimate catgut undergoes disintegration more rapidly than carbolic catgut.

Catgut was obtained from different sources, kept for varying times, and cultivations made from it. In this way it was shewn that sublimate catgut, well prepared, invariably gave negative results, and was, in fact, perfectly and permanently free from germs.

The method of preparation employed by Brunner was as

follows:—The catgut in the raw state, after being thoroughly scrubbed with a brush and potash soap, is immersed in ether for half an hour to remove all fat. It is then placed for twelve hours in a watery solution of sublimate, 1-1000, and finally preserved for use in a solution of sublimate in alcohol and glycerine, composed of 1 part of sublimate, alcohol 900 parts, glycerine 100 parts.

Relapse of Hernia after various operations for radical cure.—In the *American Journal of Med. Science* for August is given an abstract of a paper by Bull and Milliken, which appeared in the *New York Med Journal*.

During the last three years the authors have examined the patients applying to the Hospital for Ruptured and Crippled with the view of furnishing statistical evidence of the value of different methods of cure. The relapsed cases numbered 119, and in 73 of these the method of operation was ascertained. Relapses occurred as late as two years and six months, and three years after operation. This would shew that evidence as to the value of operation must extend over a longer period than is usually the case, and that cases which have undergone no relapse in a year cannot be therefore reckoned as cures in all cases. In a series of 136 cases operated on by the author a year ago for radical cure, there were only 4 which had been over four years without recurrence.

He states that he has never seen any evidence of damage to the contents of a hernia from the wearing of a truss. In his own practice he always, immediately after operation and the wound has healed, orders a light truss, which shall merely support the parts. The scar left by operation where much suppuration has occurred, is often intolerant of pressure; union, therefore, by first intention is always of the first importance, as the parts are thus restored as nearly as possible to their normal condition and will not be unfavourably affected. The orifice of a relapsed hernia after treatment by the open method of operation is like that of a ventral hernia. There is no neck or canal, but the hernia protrudes directly forwards. This causes a greater difficulty in the fitting of a truss.

But although patients are not cured by these operations, the majority are certainly improved. The protrusions are not so large as before, and a truss is worn with greater ease and comfort. He advises that the term "cure" should be dropped, and that all cases should be watched after operation for at least five years. He would insist on the patient wearing a truss from the time he leaves his bed.

Recent Advances in the Treatment of Syphilis.—C. Szadek, M.D. (*Med. News*, August 15th.) In this article the author gives a clear and concise account of the various new remedies employed in the treatment of syphilis, with remarks on their comparative values.

Kaposi, of Vienna, would never excise the primary sore, and would not begin an anti-syphilitic treatment until the roseola appeared, immediate treatment, in his opinion, only delaying constitutional symptoms, and being liable to be followed by cerebral symptoms. Inunction he regards as unscientific, but still as the most efficacious form of treatment. He recommends the injection subcutaneously of some soluble preparation of mercury, but is opposed to the injection of insoluble compounds, as they are but slowly absorbed.

Petrini believes that tannate of mercury, given in the form of a pill over a long period, is one of the best ways of administration, causing a prompt involution of the symptoms without unduly irritating the gastro-intestinal tract

Salicylate of mercury is another valuable preparation, and may be continued for two or three months without evidence of interference with digestion. The therapeutic action is prompt and satisfactory.

He then passes on to the consideration of treatment by means of intra-muscular injection. The number of mercurial salts employed for this purpose is continually increasing, and some observers prefer soluble, some insoluble preparations. The ones receiving most attention at present on the Continent of Europe are the salicylate, thymolo-acetate, and benzoate of mercury. As regards the salicylate, injections of about one grain,

suspended in a weak solution of gum, were injected at intervals of three days into the muscles of the gluteal region. Its therapeutic action was especially marked in affections of the skin and mucous membranes. Relapsing forms yielded to treatment in from two to four weeks. In no case did any abscess form at the seat of injection.

Among other new preparations which have lately been employed in like manner may be mentioned the oxycyanide, black oxide, grey oil, a gluten-peptone, hydrochloric sublimate, and others. Comparative experiments have resulted in demonstrating the superiority of the salicylate and thymolate of mercury.

The following inconveniences and dangerous accidents have however been reported as following such subcutaneous injections:—Necrosis of both maxillary bones after the protracted injection of grey oil; a case of death after injections of calomel; dysentery, herpetic eruptions in the course of cutaneous nerves irritated by the injection. Abscess at the seat of puncture.

The writer, in speaking of non-mercurial remedies in the treatment of syphilis, extols iodol both as an external and internal medicinal agent. It is harmless, tasteless, odourless, and contains a large percentage of iodine, and does not in any way disturb the intestinal tract. Its therapeutic results were most satisfactory in inveterate syphilitic hemiplegia and tertiary ulcerations.

On Resection of the Vermiform Appendix during the quiescent stage of chronic relapsing appendicitis.—By R. F. Weir, M.D. (*Annals of Surgery*, vol. xiii., 5). The author's remarks are based on the reports of 26 cases in which operations had been performed for the relief of relapsing appendicitis. The operation in all the cases had been performed during a quiescent stage in the disease. The mortality was but slight, only one case proving fatal, and permanent relief of all symptoms was obtained in a large proportion of the cases. The points brought out by a study of the cases are shortly as follows:—

In no instance was any concretion or foreign body found,

such as is generally encountered in the acute perforative appendicitis. A general catarrhal condition was frequently found associated in some cases with a kinking of the appendix, in others with a stenosis of its upper portion with an accumulation of pus or muco-pus beyond the narrowed portion. In only six of the cases were no adhesions found, and in many of them the adhesions proved troublesome. Fitz, drawing his conclusions from 72 cases seen during the past four years, states that recurrences take place in as many as 44 per cent. of the cases seen in consultation, and advocates an intermediate laparotomy when a patient is debarred from this cause from the enjoyment of life or ability to earn a living.

Weir sums up his ideas in the following statements :—

1. That the large majority of recurring attacks are due to catarrhal appendicitis, in which from the lumen of the tube being previously shut off from the cæcum the chances of fæcal or severe infection of the peritoneum are but small.

2. That such simple catarrhal appendicitis can be suspected when the recurrences are frequent, not severe, and particularly if there be no appearance of a distinct tumour.

3. That in such cases delay in operation may be encouraged until it is proved that the invalidism is confirmed.

4. In cases where a tumour is present in the quiescent stage more urgency exists, as it indicates either an accumulation of noxious contents, or of ulceration within the appendix, or an already present small perforation.

5. That as the diagnosis of the separate conditions of simple catarrhal appendicitis and its complications of distension from retained fluids, and of ulceration, are not to be at present differentially diagnosticated, and as it has been shewn that each can give rise to dangerous conditions, recurrences of severity and frequency should indicate an exploratory laparotomy, on the general principle of this being of less risk than the disease itself.

The Treatment of Hydrocele by carbolic acid injections.—
S. E. Milliken, M.D. (*Ann. Surg.*, October, 1891.) The use

of carbolic acid for the cure of hydrocele was introduced by Lewis in 1872. Since then a number of articles have been written by American surgeons approving strongly of the method. The more radical methods of laying open the sac require the use of an anæsthetic and a more or less prolonged rest in bed after the operation. The advantages claimed for carbolic acid injection are that it is comparatively painless, no anæsthetic is required, and confinement to bed is in no way essential.

The author, after having completely evacuated the hydrocele, injects from five to twenty minims of liquefied crystals of carbolic acid. The surfaces of the sac are gently rubbed together after removing the trochar to ensure the thorough coating of the sac with the irritant. The inflammation produced reaches its height in twenty-four hours. The exudation is occasionally hæmorrhagic, but is always re-absorbed. Of 54 cases so treated, 9 were not seen again, 5 seen only once, and 4 were at present under treatment. The remaining 36 cases were all cured, 27 by one injection, 4 by two injections, and 5 by 3 injections. In no case did the patients stay away from business more than twenty-four hours. If less than thirty minims be injected, sloughing never occurs. He therefore prefers to use a small quantity in all cases, and repeating the injection if necessary, rather than to run any risk of producing sloughing.

REVIEWS.

A MANUAL OF OPERATIVE SURGERY.*

MR. TREVES is so well known as an able writer upon anatomical and surgical subjects that such a work as the present will be much sought after both by teachers and taught alike, and they will not be disappointed in expecting a clear and judicious

* A Manual of Operative Surgery. By Frederick Treves, F.R.C.S. Two volumes, with 422 illustrations. London : Cassell and Co. Limited.

exposition of the present position of operative surgery. The manual is not a mere text-book of operations on the dead body, but contains, in addition to the descriptions of the individual operations, a comment on the considerations which should weigh with the surgeon when deciding upon what procedure he will adopt. Further, a brief account of the details of the after-treatment is given, and each great division—as, for instance, “Amputation”—is introduced by a *résumé* of the general facts bearing upon the particular subject, such as the condition of the stump, the control of hæmorrhage, the general methods of amputating, etc.

The regional arrangement adopted by some writers on the same subject is not followed by Mr. Treves, who has, wisely we think, kept to the more usual plan of describing the various operations of a similar kind together; as, for example, ligature of arteries, excision of joints, osteotomy.

The author says in the preface: “For the selection, out of the vast and bewildering collection provided by the literature of surgery, of particular methods of operating I must hold myself answerable. I have selected such measures as have appeared to me to be the best, and have made no attempts at encyclopædic completeness.” In this we think he is fully justified, both by the necessities of space and by the wisdom of his selection. It is impossible within the limits of a review to examine critically the whole of the articles seriatim, and we propose to give only a general sketch of the contents of the two volumes, with an occasional comment on any particular point.

The first volume deals with general principles, the administration of anæsthetics, the ligature of arteries, operations upon nerves, amputations, operations on the bones and joints, and tenotomy. Under the heading, “General Principles,” there is much sound advice on such matters as the preparation of the patient, instruments, and so on. In the present day of very “active” surgery it would be well if the facts so forcibly urged here could be more widely impressed on the minds of practitioners than they are. How many mishaps have occurred

through doing some little operation on a patient whose general condition has not been investigated, or some great operation on one who has been taken straight from a busy active life to the operating-room. Some of the bad habits into which operators lapse, especially those whose anatomical knowledge is shaky, such as the frequent use of the handle of the scalpel and of the director, are strongly denounced as barbarous.

The section on the administration of anæsthetics is by Mr. F. W. Hewitt, Anæsthetist to the London Hospital, and is a practical and thoughtful exposition of the subject.

Part III., on ligature of arteries, is excellent, and is evidently written by a surgeon who has carefully revised all the details by his own experience both in the operating-theatre and in the dead-house. We note that Mr. Treves advocates ligature of the common iliac or of the internal iliac by the intra-peritoneal operation.

Part V., on amputations, is as complete as it can very well be; indeed, it might be better in a future edition to cut it down rather. Speaking of the control of hæmorrhage, the author strongly condemns the use of Esmarch's bandage and ligature, at all events to anything like the extent to which they are now employed, and he advocates instead digital compression of the main artery wherever that is possible.

There is a statement on page 275 which might be altered in a new issue. It is that necrosis of the amputation stump is due to injury by rough sawing or to extensive damage to the periosteum. This is hardly in accord with modern teaching, which generally ascribes it to osteo-myelitis from infection. A question worth considering in amputations is the most convenient point for ablation of the part with a view to providing the instrument maker with the most suitable stump, that is, one giving him the greatest mechanical advantage. Perhaps a second edition will find space for dealing with this. Describing amputations at the shoulder joint, Spence's method is recommended as the best. Looking to the fact that many of these amputations are done for malignant growths of the humerus, we

doubt the wisdom of adopting this method as a rule. It unavoidably brings the flaps in undue proximity to the growth in a number of cases, and we have seen a piece of a sarcoma actually left attached to the deltoid on the outer side of the racket incision after the disarticulation. There is a very clear description given of Berger's interscapulo-thoracic amputation, which, as far as we are aware, has not yet found its way into any other English text-book.

The second volume deals with plastic surgery, operations on the neck, on the abdomen, on hernia, upon the bladder, the scrotum and penis, the rectum, the head and spine, and on the thorax and breast.

The chapters on plastic surgery are amongst the best in the book, though Mr. Treves is evidently not so optimistic as to results as are some writers on the subject. We note one omission, which ought to be rectified; it is the absence of any description of Tait's operation for ruptured perinæum, in our opinion the best devised.

It is somewhat of a surprise to find on page 183 the statement that "in most cases of cancer of the tongue it is better to remove the *entire* tongue." We believe that statistics would be greatly in favour of the partial operations as far as the mortality goes, and that a lateral half of the tongue is not the inconvenience here described. The use of the *écraseur* in removal of the tongue, except on the plan advised by Morratt Baker, is strongly condemned, and preference is given to excision, after ligature of the linguals, just above the digastric tendon.

The chapters on intestinal surgery are full and clear. Senn's very numerous resources and devices receive the attention their importance deserves. Weighing the advantages of lumbar and iliac colotomy, Bryant's conclusions as to the advantages of the former are accepted. In a future edition we hope room may be found for a description of gastrostomy on Hahn's method, and for a description of pylorotomy, devised by Senn as a substitute for Loreta's operation in simple pyloric stricture.

In congratulating Mr. Treves on his work, it is pleasant to

acknowledge his fairness towards other writers and his recognition of their merits.

We have only to add, in conclusion, that the printing and illustration of the book are all that can be desired.

LEPROSY.*

THIS excellent account of leprosy has been published most opportunely, as the discovery of the bacillus lepræ, and the conviction—due largely to bacteriological studies—that the disease is contagious, have resuscitated interest in a disease which perhaps had appeared to be of as little practical importance as the plague or the sweating sickness to English medical men. Dr. Thin's book, while not claiming comparison with the great classical descriptive treatises, is a convenient, clear, and accurate account of our present knowledge of leprosy. It is especially concerned with three points: 1, the contagious nature of the disease; 2, the consequent need for its recognition in its early stages; and 3, the necessity for proper measures by which the isolation of the leprous sick shall be secured.

The first point is elucidated in chapters on the pathology of leprosy, on its contagiousness, supposed heredity, etiology, and inoculation experiments; and we think that, after reading this evidence, every unprejudiced person will accept the view now entertained by those best qualified to judge—that the disease is contagious, *and spreads only by this means*. We are sorry that Dr. Thin appears to minimise the danger—in communities where there are many lepers, of vaccination becoming a means of conveying infection. We think the evidence that this has occurred is incontestable, and that every possible precaution should be insisted upon in order to prevent such a horrible result from an operation intended to be only beneficent. It is probable that as the knowledge of the contagious nature of leprosy becomes better diffused amongst the medical profession

* Leprosy. By George Thin, M.D. London: Percival and Co. 1891.

it will become impossible to use leprosy infants knowingly as vaccinifers, as has been done in the past. The rules laid down by the author for diagnosis, and his descriptions of the disease, are very clear, and should be carefully read by every practitioner, as such a case may turn up at any time among a population like ours, members of which are constantly going to and from the uttermost parts of the earth.

Dr. Thin gives many interesting details of the ancient laws and customs by which leprosy has been dealt with in times past, but he expresses a reasonable doubt whether such stringent measures would be possible in these more civilised days. He considers that in England no legislation is required, as the number of cases imported is very small, and the instances of communication or spread of the disease have been few. But in countries where lepers are more numerous, particularly in our colonies, he advocates an annual census of lepers, with suitable inspection and isolation on the Norwegian plan; that is to say, where a leper cannot or will not have his own room, his own bed, knife, fork, and spoon, and his own clothes, he should be obliged to enter an asylum where the sexes are separated and intercourse with the healthy population is permitted only under suitable restrictions. He thinks that legislation for India authorising the segregation of lepers would be in harmony with native opinion and would do good, though the provision of asylums would be possibly beyond the power of the Government on account of their expense.

The book is illustrated with a few well-executed autotype plates, and a map indicating the geographical distribution of the disease.

THE ORGANIC ANALYSIS OF POTABLE WATERS.*

THE title of this little book is an ambitious one and somewhat misleading, the subject only being treated from one point of view, as the author explains in his preface. It consists of four

* The Organic Analysis of Potable Waters. By J. A. Blair, M.B., C.M., D.Sc. Edin. London: J. and A. Churchill.

parts, the first of which gives a short account of the ordinary "Wanklyn" method of estimating organic matter, and the still older "oxygen absorbed" process.

Part 2 is devoted to a description of a modified form of the "oxygen absorbed" process, the water being maintained at boiling temperature for two hours instead of being kept at the ordinary temperature of the air. The author does not claim absolute accuracy for this method, but points out that higher results are obtained, and quotes experiments to prove that these are nearer the actual truth than when the older plan is adopted.

Part 3 gives a very workable description of a process experimented upon by the author for the estimation of organic nitrogen in water by means, first of all, of cleaning with sulphuric acid, and then distillation with alkali and subsequent estimation, as ammonia by Nesslerizing.

Part 4 is devoted to a process for the ready estimation of organic carbon by means of sulphuric acid and permanganate of potassium, and the subsequent determination of the amount of carbonic dioxide produced. The author speaks confidently of its accuracy, but it is certainly, even by his own shewing, one requiring considerable skill and experience. Whether it will really prove of value can only be determined after lengthened experiment by other competent observers. At the present time there can be little doubt that, in the direction of water analysis, more is to be looked for from the bacteriological than from the purely chemical direction; but the author may certainly be commended for his efforts to render more accurate, processes now in vogue, which give us information only as to the quantity and not the nature of organic matter in our drinking waters.

ON HARELIP AND CLEFT PALATE.*

As assistant to Sir William Fergusson, Professor Rose had unusual opportunities in his earlier years of studying the details

* On Harelip and Cleft Palate. By William Rose, M.B., B.S. Lond., F.R.C.S., Professor of Surgery in King's College, London. London: H. K. Lewis, 136, Gower Street, W.C.

of these two conditions, and later he has operated upon large numbers of cleft lips and palates, with very good results as far as his statistics shew. It will therefore be at once understood that this small volume contains the valuable experience of one intimate to an unusual degree with the minute practical details of the subjects of which he treats. There is no great new method put forward, such as that by which Langenbeck revolutionised uranoplasty; but any such advance in the present day is not to be expected, seeing to what a satisfactory state the operation has been brought.

The first three chapters are devoted to general remarks on these two deformities, their frequency, occurrence in animals, etc.; to the anatomy and physiology of the normal palate; and to the development of the mouth, face, nose and teeth; the last being written by Mr. Carless.

There is one chapter on the anatomy and physiology of harelip and cleft palate as distinguished from the normal lip and palate.

Chapter V., perhaps the best in the book, describes the operative treatment of harelip. It comprises a consideration of the best period for operating, statistics, precautions to be adopted, together with the numerous plans suggested by various operators for making the incisions.

The sixth chapter, on the operative treatment of cleft palate, is also fairly complete, and is followed by others on obturators and artificial velæ, on the results of treatment, and on syphilitic affections of the palate.

Any surgeon reviewing this book would doubtless disagree with the author upon some points of detail, as to the favourite gag, the best way of introducing sutures into the palate, the time at which the edge of the cleft should be pared, whether before or after the use of the raspator, and so on; but this does not detract from the general merit of the work. This is enhanced by a number (75 in all) of very good illustrations.

FIRST LINES IN MIDWIFERY.*

IN this small book of 190 pages, which can be easily carried in the pocket, Dr. Herman gives a concise account of the whole of the science and art of midwifery. He explains in the preface that the student will find some matter which is unnecessary to him; and this is particularly the case in the chapter on the anatomy of the generative organs. If one could find a fault with the book, it is that it is intended to meet the wants of two distinct classes of readers, and that while some of it is too elementary in nature for students, the other must be beyond the grasp of a midwife; *e.g.*, the auscultation of the foetal heart.

The book is very well arranged, and will be found an extremely useful one by students entering on the study of midwifery and attending their first cases.

We notice that he has not much faith in the binder, and says that "if the patient does not like it, there is no need for pressing her to submit to it."

He very properly lays stress on the importance of thoroughly cleaning the hands before making a vaginal examination, but we think attaches too much importance to the use of perchloride of mercury, and advises a vaginal douche of 1 in 2,000 as a routine proceeding in every case at the termination of the third stage of labour.

The book is very well printed, with distinct headings to each paragraph, and the student, or indeed the young practitioner, will find it a very valuable companion.

THE THEORY AND PRACTICE OF NURSING.†

THE fact that the first edition of this nursing manual has been quickly exhausted in very little more than a year shews that it well supplies an ever increasing demand for knowledge amongst nurses.

* *First Lines in Midwifery: a Guide to Attendance on Natural Labour, for Medical Students and Midwives.* By G. Ernest Herman, M.B. Lond., F.R.C.P. London: Cassell and Co. Lim.

† *The Theory and Practice of Nursing.* By Percy G. D. Lewis, M.D. London: "The Hospital" Limited. 1892. Second Edition.

The present edition has been enlarged and made more complete by the addition of chapters on Surgical Emergencies and the Immediate Treatment of Fractures ; on Position in Disease, and on the Administration of Drugs. At the end of the book is a useful series of plates shewing many of the more commonly used medical and surgical instruments.

We have read the book with interest and can warmly recommend it as a nursing manual. At the beginning of each chapter the author gives a general outline and description of some particular organ or part of the body, and he explains as he describes, the rationale of many points in medical and surgical treatment. But he does not fall into the error, like so many of the authors of books on nursing have done, of making his book a compendium on medicine and surgery, or merely an explanatory dictionary of medical terms. As is said at page 31, "Nurses should remember that they have to learn nursing, not physiology and anatomy." Bearing this in mind he has made the book form throughout a work on practical nursing.

The section on the Administration of Medicine, on Fractures and Splint making, on the Female Pelvic Organs, and on Convalescence, are especially good. The illustrations are well executed and plentiful. The hospital nurse, for whom the book is especially written, will find it full of useful hints and information.

MODERN MATERIA MEDICA.*

THIS small book of rather more than one hundred pages gives a clear and succinct account of the newer remedies that are met with in modern Materia Medica. Antipyrin, exalgin, urethine, sulphonal, salol, and lanoline may be given as instances of the class of substances included in the list. Each remedy is treated of separately, with a brief account of its preparation, physical and chemical properties, and medicinal uses ; and at the end

* Modern Materia Medica. For Pharmacists, Medical Men, and Students. By H. Helbing, F.C.S. Second edition. London : British and Colonial Druggist, 1891.

of the book there are useful tables of doses, of solubilities, and of melting and boiling points, arranged so that they can be referred to readily. The list of the more important drugs and preparations incompatible with antipyrin is distinctly useful at a time when that remedy is given somewhat indiscriminately.

The antiseptic mouth-wash made with saccharin, as suggested on page 72, is very much too sweet, and leaves a horribly sickly after-taste. In addition to this, there is some danger of an explosion from the effervescence produced in its preparation; and, when safely made, the appearance is not attractive.

A more distinct indication of the drugs included in the Pharmacopœia would add to the practical usefulness of this handy little book.

OUTLINES OF PRACTICAL PHYSIOLOGICAL CHEMISTRY.*

THIS little book in the space of 86 pages gives a fair epitome of the essentials of physiological chemistry. It is accurate and up to date. It is intended to be of use not only to students, but also to practitioners who have not leisure to read up larger text-books, and no doubt the latter will find it a useful guide. We doubt the advisability of placing it in the hands of students, except as an introduction to larger text-books, as the information is much too meagre to enable a student to obtain an intelligent grasp of the subject. As an outline to be filled in by more extensive reading it may be recommended to students, and it may serve as a guide to direct attention to the more important subjects.

There are a few slips, *e.g.*, choletin for choletelin; and some important tests omitted, *e.g.*, the ferric chloride reaction for diacetic acid in urine and Ehrlich's diazo-benzol-sulphonic acid reaction. There is no mention of the aromatic sulphates or the

* Outlines of Practical Physiological Chemistry. By F. C. Larkin, F.R.C.S., and Randle Leigh, M.B., B.Sc. Pp. 86. Second edition. London: Lewis. 1891.

method of estimating them and distinguishing them from the preformed sulphates. The fallacies attending the guaiacum test for blood are not pointed out. In fact, to save space the book has been spoilt for accurate work.

ATLAS OF CLINICAL MEDICINE.*

WE have just received the third part of the first volume of this splendid atlas, which has been already noticed. We strongly recommend our readers to become subscribers, as the book is not only intrinsically of value, but is certain to be a good investment. The present issue contains the following plates, with descriptive accounts of the diseases represented :—Progressive unilateral atrophy of face (two plates), chronic progressive bulbar paralysis (two plates), ophthalmoplegia externa (two plates), molluscum fibrosum (two plates), xeroderma pigmentosum (three plates).

THE SIMULATION OF HYSTERIA.†

THIS is an expansion of the author's presidential address to the Neurological Society, delivered in January, 1890. Though only a small book, it is, like all Dr. Buzzard's writings, most valuable. There is no writer who appreciates more fully the importance of good clinical description, or who succeeds better in conveying it in a readable fashion. We strongly recommend all our readers to make themselves acquainted with this essay; for although it deals chiefly with the difficulty of differentiating insular sclerosis, especially in its early stages, from hysteria, a perusal of these pages will add to the clinical knowledge of anyone, even a specialist in nervous disease.

* Atlas of Clinical Medicine. By Byrom Bramwell, M.D. Edinburgh : T. and A. Constable. 1891.

† The Simulation of Hysteria by Organic Disease of the Nervous System. By Thomas Buzzard, M.D. Lond. London : J. and A. Churchill. 1891.

EPIDEMIC INFLUENZA.*

THIS is a well-arranged essay on the etiology of influenza, in which the author argues for the infectious and contagious nature of the disease. His argument is founded on a carefully-selected series of facts gathered from the published accounts of the various epidemics. We believe that the view he contends for is correct. The book is in no sense an exhaustive account of the late epidemics. It concludes by a proposal to place influenza among the diseases which should be notified, under penalty.

A CONTRIBUTION TO THE DEMOGRAPHY OF SOUTH AUSTRALIA.†

THIS is a short essay, in arrangement resembling the annual report of a medical officer of health, dealing with the various questions usually discussed in such documents for the colony of South Australia during the period over which the available returns extend. As it only consists of sixty-four pages, it will be understood to be a brief *résumé* of the facts, and is of interest not only as a record of the progress of the colony, but as a contribution to the rapidly growing science of demography.

SONG OF THE SQUIRT.‡

DR. KEELING, of Sheffield, has written an amusing, and on the whole a good-tempered gibe, in verse, at the pilgrimage to Berlin and its sequences. The Bacillus divides his lay into two parts; the first, *ante mortem*, being etiological and prognostic; the second, *post mortem*, and devoted to baffled therapeutics. It goes without saying that the follies of a year ago

* Epidemic Influenza : Notes on the Origin and Method of Spread. By Richard Sisley, M.D. London: Longmans, Green, and Co. 1891.

† A Contribution to the Demography of South Australia : being the Thesis presented to the University of Edinburgh for the Degree of M.D., and deemed Worthy of Competing for the Gold Medal. By Thomas Borthwick, M.D. Edin., etc. London: Baillière, Tindall, and Cox. 1891.

‡ Song of the Squirt. By Bacillus.

receive some stripes, at which none will grumble, not even those who themselves rather lost their heads. But Dr. Keeling has, we think, allowed his prejudices to carry him too far occasionally, as when he makes his hero say :

“ Tell Pasteur and Koch, or whoever they be,
Their venom and squirts are all fiddle-de-dee.”

It is evident his *Bacillus* is not that of anthrax or pig typhoid or fowl cholera, or he would not be so bold as to jeer in this manner, at all events at Pasteur.

The last verse contains matter which all of us may preach from with advantage, whether disciples of Koch or no. Says the *Bacillus* :

“ Breed less, and breed better, and give up your vices,
Your feasting and drink, your sinful devices,
Which weaken your limbs and ruin your vitals,
And bring on diseases of all sorts and titles.
When your tissues are sound you'll not find us about you,
Your débris 's not *choice*, we can well do without you.”

New Inventions, Drugs, etc.

JELLY-CARNIS, CAFFYN.—We have received a specimen of this food for invalids prepared by the Liquor Carnis Company. It is claimed that it contains 66 per cent. of Caffyn's Liquor Carnis and possesses all the stimulating substances characteristic of ordinary Beef-Essence and Liebig's Extract of Meat, as well as the soluble albuminoid constituents present in pure Beef juice as it comes from the steak without the aid of heat, acids, or alkalies.

A NEW AMMONIUM INHALER.—Mr. J. Stenson Hooker, L.R.C.P., L.R.C.S., says that the neutral fumes of chloride of ammonium have been advocated and used for some years by the medical profession, and that this form of chloride of ammonium is destined to be still more largely employed, alone or combined with other medicinal agents, in the treatment of those diseases which are peculiarly prevalent in the British Isles, and obtain, more or less, over the wide world. Its use has, how-

ever, been restricted on account of the cost of the apparatus employed in its production ; but he now places before the profession an instrument for producing chloride of ammonium vapour, at once simple, convenient, very moderate in price, and one which the patient can easily use while walking, sitting, or reclining. The Inhaler is manufactured by Messrs. Burroughs, Wellcome and Co.



Obituary.

JOHN BASSETT, M.D. ST. AND., M.R.C.S.

WE regret to record the death of Dr. JOHN BASSETT, for many years Professor of Midwifery, Queen's College, Birmingham, which occurred at his residence, in the Hamstead Road, Handsworth, at the age of 66, after a long illness.

Born at Countesthorpe, in Leicestershire, he was educated at the Leicester Proprietary School, and began his medical career as an apprentice to Mr. Batchelor, of Dunstable. In 1843 he entered as a student at Guy's Hospital, completing his apprenticeship with Mr. Martin, of Bermondsey. While at Guy's he seems to have been notably and very naturally influenced by Dr. Addison and Mr. Aston Cooper Key, of whom he often spoke. Among his contemporaries and life-long friends were Norman Chevers, Cleveland, and Braxton Hicks. Having taken the membership of the Royal College of Surgeons in 1846 he came to Birmingham as House Surgeon to the old Lying-in Hospital, then existing in Broad Street, and after a period during which he obtained the thorough knowledge of obstetrics which probably influenced his subsequent devotion to this department of study, he commenced practice in Hockley.

At the establishment of Sydenham College he joined Dr. Bell Fletcher and the little band of colleagues who worked so devotedly to form a school

of medicine in connection with the General Hospital, and lectured at first on *Materia Medica*, afterwards being transferred to the more congenial chair of Midwifery. At the amalgamation of the two Colleges in 1868 he became Professor of Midwifery in Queen's College jointly with Mr. Clay.

In 1873 he obtained the Degree of M.D. from the University of St. Andrews. In 1879 he delivered the Ingleby Lectures in Queen's College. He resigned the chair of Midwifery a few years ago owing to ill health. His contributions to medical literature were chiefly on obstetric subjects, his paper on Secondary Hæmorrhage being generally recognised as a classic.

Dr. Bassett was twice married and leaves a widow and two daughters. His son, Dr. H. Thurstan Bassett, died last September in South Africa, whither he had gone on account of failing health.

Dr. Bassett deserves to be remembered as an honest, skilful, and conscientious practitioner, a devoted teacher, and a kindly friend and colleague; he faithfully employed the talents he possessed and worthily occupied a useful and honourable position.

New Books, etc., Received.

An Introduction to Human Physiology. By AUGUSTUS D. WALLER, M.D. London: Longmans, Green and Co.

Introduction to the Antiseptic Treatment of Wounds according to the method in use at Professor Billroth's Clinic, Vienna. By Dr. VICTOR R. V. HACKER. Translated by Surgeon-Captain C. R. KILKELLY, M.B. London: Percival and Co.

A Treatise on the Ligation of the Great Arteries in continuity, with observations on the Nature, Progress, and Treatment of Aneurism. By CHARLES A. BALLANCE, M.B., M.S. Lond., F.R.C.S., and WALTER EDMUNDS, M.A., M.C. Cantab., F.R.C.S. London: Macmillan and Co.

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THE
BIRMINGHAM MEDICAL REVIEW.

MARCH, 1892.

ORIGINAL COMMUNICATIONS.

EYE SYMPTOMS IN GENERAL DISEASES OF THE
NERVOUS SYSTEM.

THE MIDDLEMORE LECTURES, 1891.

BY E. WOOD-WHITE, B.A., M.B., B.CH.

SURGEON TO THE BIRMINGHAM AND MIDLAND EYE HOSPITAL.

Gentlemen,

My first duty this evening is a sad one. It is to remind you that since the last of these annual lectures was delivered Mr. Richard Middlemore, their founder, has ended his long and honourable life. Descended from one of the oldest families in the district, he fully maintained its traditions. In him were united the courteous gentleman and the able surgeon. His life I think may be an example to all of us: honourable in his relations with all brought into contact with him, whether patients or professional brethren, and always anxious to place the results of his great experience and knowledge before his profession. The establishment of these lectures a short time before his death shews that this spirit animated him to the end.

The Birmingham School of Ophthalmology moreover owes much to the indefatigable zeal and literary ability of Mr. Middlemore, for his numerous writings, and especially his able work on Ophthalmial Surgery drew much attention to this Hospital and helped to establish it as one of the most important institutions of its kind in the country.

Although his age and health prevented him for some time from taking any active part in his profession, still I am sure we all feel that a great loss has been sustained by his death, and the removal of his name from the list of Surgeons to the Eye Hospital breaks a link with the past that cannot be replaced.

The founder of these lectures evidently intended that each year some subject connected with ophthalmology should be brought to the notice of the medical profession, and on reflection it seemed to me that a short review of the eye symptoms met with in connection with diseases of the nervous system would be of greater use to the general practitioner than a subject chosen from a more technical part of our speciality. Many of the symptoms which I shall have to enumerate are of great assistance in determining whether brain or spinal cord disease exists or not. While others perhaps of greater interest still, though not more important, are of much use in helping to localise the seat of the lesion.

Important strides have been made during the last few years in the localisation of cerebral disease, but much yet has to be learned; and this can only be attained by a careful and intelligent record of the symptoms of each case, followed, when death occurs, by a scientific *post mortem* examination, which latter we can only expect from experts in pathology, of whom, I am happy to say, we now have so many. I feel sure that the public will soon demand from the surgeon not only the diagnosis that cerebral disease exists, but also an intelligent opinion as to its situation, and the consequent probability of something being done for its surgical relief; and for this reason I think it will be worth the while of all surgeons to devote a little time to the study of the eye, and the value of various symptoms affecting it, in determining the existence of, or localisation of, cerebral disease. Its importance will be easily understood when it is remembered that three cerebral motor nerves, the ophthalmic division of the fifth and the optic nerves, are intimately connected with it, many of them running a long course, disease in any part of which produces important symptoms. Moreover,

by aid of the ophthalmoscope, we can see the termination of an artery and the commencement of a vein, and the blood circulating within them, vessels which are closely associated with the cerebral circulation, as they are branches of an artery which supplies part of the cerebrum and meninges with blood.

As an accurate knowledge of the origin and course of all these nerves is essential before the value of symptoms arising from disease can be properly appreciated, I will ask you to bear with me for a few minutes while I as briefly as possible allude to them.

The sixth or abducens nerve, so called because its function is to supply the muscle that draws the eye outward, starts from an oval nucleus at the front part of the fourth ventricle in the central grey matter at its floor, and very close to the median line. The eminentia teres in the ventricle shews its position. Its fibres pass forwards and a little inwards, and come to the surface at the posterior edge of the pons; from thence, passing forward, it enters the dura mater behind the dorsum sellæ, and crossing the floor of the cavernous sinus, enters the orbit through the sphenoidal fissure, and is entirely distributed to the external rectus muscle.

The fourth or trochlear nerve rises from a nucleus of large cells below the aqueduct, extending from the junction of the anterior and posterior corpora quadrigemina to the hinder level of the latter. From here it takes a dorsal direction, reaching the valor of Vieussens, where it decussates with its fellow, which is the only example of a cranial nerve decussating at a distance from its nucleus of origin. From here it takes a superficial course, appearing at the front edge of the pons near the crus. It has a long distance to traverse within the skull before it enters an aperture in the tentorium outside that for the third, and passes into the orbit through the sphenoidal fissure above the muscle, and finally enters the superior oblique muscle on its orbital surface.

The third, often called the oculo-motor, nerve comes from a number of nerve cells in the grey matter of the central canal,

which reach from the level of the posterior commissure in the third ventricle to the junction of the anterior and posterior corpora quadrigemina. It then traverses the tegementum and the red nucleus, and, piercing the edge of the pes, emerges on the surface of the brain to the side of each crus. The centres on each side are intimately connected by commissural fibres. The nerve pierces the inner layer of the dura mater close to the posterior clinoid process, lying in the external boundary of the cavernous sinus. Entering the orbit, it divides into two parts, which pass between the heads of the external rectus muscle. The upper branch crosses the optic nerve and ends in the superior rectus and levator palpebræ muscles, which it supplies. The lower divides into three branches, which enter the superior and inferior recti and inferior oblique muscles, that going to the latter giving off a twig to the lenticular ganglion.

The researches of Hensen and Voelckers shew that the nucleus of this nerve is divided into a series of centres corresponding to the functions over which it presides, the most anterior being related to accommodation, the middle part to the reflex action of the iris, and the posterior part to the external muscles of the eyeball, in the following order from before backwards :— Internal rectus, superior rectus, levator palpebræ, inferior rectus, and inferior oblique. And it is interesting to note that the separate nuclei are near each other, where the muscles are usually associated in action.

The fifth nerve commences at a nucleus of grey matter situated beneath the floor of the anterior part of the fourth ventricle ; it reaches the surface of the brain on the ventral aspect of the pons. The ophthalmic division of the fifth is the smallest of the offshoots from the Gasserian ganglion. Near the orbit it divides into frontal, nasal, and lachrymal branches. These branches pass with the other nerves through the sphenoidal fissure, supplying with sensation the eye, nose, eyelids, and forehead. The nasal branch gives filaments to the ophthalmic ganglion. This very important ganglion is the centre for the supply of nerves motor sensory and sympathetic

to the eyeball. It is situated at the back of the orbit between the external rectus muscle and the optic nerve. It has branches entering it from the third and fifth, as already described, and also from the sympathetic. It gives off twigs which supply the iris and ciliary muscle. The sphincter of the iris receives its enervation from the third nerve, the branch passing through the ganglion.

Here I may allude to that beautiful mechanism the contraction of the pupil to light. Anatomical investigations have shewn that there are connecting fibres between the visual centre in the corpora quadrigemina and the third nerve centres. There are special afferent fibres in the optic nerves for this mechanism only, along which the sensation of light is conducted to the visual centres, it is conveyed from here by the connecting fibres to the third centre, and from them by the nerves through the ophthalmic ganglion to the sphincter of the iris. Contraction of the pupil not only takes place to light but also occurs when the eye accommodates for any close object, and the contraction is closely associated with convergence.

The dilating nerve of the iris rises in the floor of the aqueduct of Sylvius, passes down the spinal cord through the cilio-spinal centre, finally reaches the sympathetic in the neck, and passing upward with the vessels reaches the ophthalmic ganglia and is distributed to the dilating fibres of the iris.

Having left the orbit the optic nerves undergo a partial decussation at the chiasma. Those fibres from the inner side of each retina cross to the opposite side, while the temporal fibres pass to the brain on the same side. More fibres cross than otherwise, as the temporal half of each field of vision is the larger. At the posterior part of the tract fibres are found which pass from one optic tract to the other. In the tracts the fibres which have crossed lie for the most part on the inferior surface, and those from the same side on the superior. The fibres from the lower half of each retina lie outside those from the upper. The tracts take an outward course winding round the crura; beneath the thalamus they divide into two parts. The outer goes to the

optic thalamus, the external corpus geniculatum, and the anterior quadrigeminal body. From here fibres radiate through the sensory portion of internal capsule to reach the cortical visual centre which is situated in the occipital lobe.

The inner root of the tract goes to the internal geniculate body and the posterior corpora quadrigemina. It is said by Geden only to contain the nerve fibres which at the commissure come from the opposite tract. It is probable that the principal function of this part of the tract is to connect the visual and motor ocular centres.

Numerous observations have proved that hemianopia—loss of half the field of vision in each eye—results from disease of the occipital lobe, which accordingly must receive impressions from the opposite half of each field of vision. The exact position of this centre in man has not been determined, as the symptom has resulted from disease of various parts of the lobe, but most frequently the apex has been involved. Disease, however, occasionally produces crossed amblyopia—dimness of vision of the opposite eye; and this is in accord with Ferrier's conclusions from his experiments on monkeys—that there is a whole visual centre in the occipital lobe in addition to the half centre, the function of which is to enervate the eye on the opposite side. In the monkey there is no doubt that the centre exists at the angular gyrus. Amblyopia caused by disease of it is very transient, as compensation for its loss quickly takes place. In this way it differs markedly from affections of the half-visual centres, for which loss there is no compensation. The field of vision on the same side is also slightly contracted when there is disease of the whole visual centre, which makes it probable that the centre represents the whole of both fields, but the opposite side more perfectly.

Having reminded you of the anatomy of the parts bearing on my subject, I shall proceed to describe the symptoms which paralysis of the motor nerves gives rise to. The primary position of the eyeball is that in which, the head being held erect, the gaze is directed forwards. The rectus, externus and internus,

lying in a plane which corresponds with the horizontal plane of the eyeball, moves the latter directly inwards and outwards. The plane of the superior and inferior recti does not correspond with the vertical plane of the eyeball, but one which forms with the antero-posterior axis an angle of 70° , so that in addition to rotating the eyeballs upwards and downwards, they move them somewhat inwards, and they give the vertical meridian of the cornea an inward and outward rotation respectively. The principal action of the oblique muscles is to incline the vertical meridian of the cornea, the superior inclining it inwards, the inferior outwards. In addition to this, however, the former rotates the globe downwards and outwards, and the latter upwards and outwards. A knowledge of the action of these muscles is indispensable to the understanding of the position of the false images that take place when paralysis occurs.

If any of these muscles are paralysed or weakened diplopia is at once complained of. The affected eye being deviated from its proper position, the image of an object looked at does not fall on identical portions of the retina, and consequently seems double. If the paralysis is very slight the double images overlap each other, and a blurring and confusion of the object looked at is only noticed. Giddiness is often a prominent symptom, and is due to the double vision and faulty projection. If the affected eye be covered over it disappears. If the paralysis is marked strabismus is apparent, and can easily be recognised.

The deviation of the axis of the paralysed eye from the sound one is named the primary deviation. Secondary deviation is the name given to that which takes place when the affected eye is made to fix an object the sound one being covered, the latter if observed will then be found to squint. This deviation is greater than the primary because the muscle in the sound eye which is associated with the paralysed one on the opposite side receives an equal nervous stimulation to that sent to the weak muscle, as the latter requires a very strong impulse its associated muscle is over excited. This symptom enables us to distinguish a paralytic from an ordinary strabismus, as here the primary and

secondary deviations are equal. Another symptom caused by this increased enervation is erroneous projection of the field of vision. We judge of the relation of external objects to our own persons by the position of the eyeballs indicated by the enervation given to the ocular muscles. If we turn our eyes to one side we know that an object in the middle of the field is to the side of its former position, and we estimate its position by the amount of nerve energy necessary to obtain the side movement. When a nerve however is weak a stronger nerve stimulus is required to obtain the movement, and therefore the object appears further on that side than it really is, and if the patient tries to touch it with his finger he goes beyond. This information obtained from the eye muscles is also of importance to the centres presiding over the muscles that maintain the equilibrium of the body, and giddiness frequently results, and is called ocular vertigo. Diplopia is called homonymous when the false image is on the same side as the affected eye, crossed when on the opposite. The symptoms just mentioned are common to all forms of ocular paralysis. It will also however be necessary for me to refer to paralysis of each individual muscle.

When the external rectus is paralysed, the eyeball cannot be moved outwards, consequently there is an internal squint. The pseudo-image is therefore formed on a part of the retina internal to the yellow spot, and is projected outwards. The second image is consequently on the same side as the affected eye, and is parallel to the true image.

In paralysis of the internal rectus the eye squints outwards, and the false image is crossed because it falls on a portion of the retina external to the yellow spot, and is consequently referred inwards. The two images are on the same level.

If the superior rectus is paralysed, the false image is crossed and above the true one. The reason that the false image is not directly above the true one is that the muscle draws the eye slightly inwards as well as upwards, consequently, when the muscle is paralysed there is a slight divergent strabismus.

In paralysis of the inferior rectus muscle the false image is

also crossed for the same reason, and is below the true. Its lower part is inclined outwards.

Paralysis of the superior oblique is almost impossible to detect, except from the position of the false image. It is lower than the true one, is homonymous, and the upper part of the image is inclined towards the true one.

In all these paralyses the first thing to determine is which eye is affected, and this can be most conveniently done by placing a piece of coloured glass before the patient's eye. If he is then directed to look at a flame or a white line on a black board, he will at once tell you which is coloured, the false or true image. The defect is noticed most if the eye is moved in the direction of the paralysis, and the images then are furthest apart. The most frequent of the ocular paralyses is that of the external rectus muscle, depending on diseases of the sixth nerve or its centre.

When complete paralysis of the third takes place, all the muscles are affected excepting the external rectus and the superior oblique; the eyelid droops, and the eye can be only moved outwards and a little downwards. Moreover, the pupil does not respond to light, and the power of accommodation is lost; but the paralysis of the nerve is more frequently incomplete, some of the muscles only supplied by it suffering. Both thirds sometimes suffer, and occasionally the muscles on each side, which are associated together in their action, are picked out.

Disease of the sympathetic causes paralysis of the dilating mechanism of the iris, and consequently contraction of the pupil; slight proptosis and ptosis is often also present, due to loss of power of the involuntary fibres of Muller.

Cycloplegia—loss of accommodation—may be caused by disease of the anterior part of the third nerve nucleus, the branch of the nerve on the ciliary ganglion. When bilateral, it is usually a nuclear lesion. It is frequently one of the first symptoms of diphtheritic paralysis, and is found in many of the degenerative diseases of the spinal cord.

Accommodative iridoplegia—loss of the contraction of the pupil when a close object is looked at—is occasionally found, and is due to the same causes as cycloplegia. Loss of the pupil reflex to light is more frequently met with. It is found of course in cases of disease of either the optic or third nerve, and is then associated with other marked symptoms; but it also occurs alone, and is then usually due to disease of the centres, or the fibres connecting the visual and motor centres. It occurs in degenerative disease of the cord, especially in locomotor ataxia, when it is an early symptom, and is usually known by the name of the Argyle Robertson pupil, he having first described the symptom. It also is found without any other nerve lesions, and in such cases a history of syphilis can usually be elicited.

All these palsies may be caused by disease in the orbit, at the base of the brain, or in the course of the fibres as they pass from the base through the brain to their centres, or lastly, in the centres themselves. As they pass along the base they are frequently damaged by inflammation which is usually of syphilitic origin. The neuritis is sometimes secondary to meningitis, or results from compression by growths or aneurism. Both thirds are liable to damage from an interpeduncular growth or an aneurism of the posterior cerebral artery. The sixth nerves are most liable to be affected by distant pressure because of their long course over the pons. Tumours of the nerves themselves are rare and are usually syphilitic. The fibres of origin suffer from various lesions, hæmorrhages, softening tumours and islets of sclerosis.

Locomotor ataxia is one of the most common causes, and in all patients having ocular paralysis ought to be looked for. In such cases the disease is usually transient, and is generally unilateral. The external rectus levator and superior rectus are the muscles most frequently affected, though the whole third may suffer. It is often one of the earliest symptoms of the disease, and we frequently see patients so suffering where there were no other symptoms, except perhaps the Argyle Robertson

pupil and slight diminution of the knee jerk. Rheumatic paralysis is also found but in such cases the neuritis is usually situated in the orbit. The nuclei of the third and sixth nerves are frequently diseased, the lesion being acute or chronic. Hæmorrhage, softening, or growths may be the cause, but most frequently a slow progressive degeneration is found.

Some time ago Mr. Jonathan Hutchinson called marked attention to cases where all or most of the muscles of the eye-balls were paralysed from disease of the centres. The condition was called ophthalmoplegia externa when the external muscles only were involved, and interna when the nerves going to the iris and ciliary muscle were affected, but both conditions frequently occur in the same individual. It is often met with in tabes, and usually a history of syphilis can be obtained. It is more frequent in men than women. One muscle is first involved as a rule, the disease gradually extending to others, and often the muscles which are associated in action on each side are paralysed simultaneously. The paralysis slowly creeps on, taking months or even years, and frequently only one or two of the ocular muscles retain their power in the end. Very often the internal muscles of the eye are unaffected, and this renders the diagnosis certain, as in disease of the trunk of the nerve they could not escape. Other diseases of the nervous system often accompany this group of symptoms, among which may be mentioned atrophic affections of the bulbar nerves, progressive muscular atrophy, general paralysis of the insane, and locomotor ataxia.

Ptosis, or drooping of the eyelid, is often an important symptom of cerebral disease. It is probable that a cortical centre exists for this branch of the third nerve, and that it enervates the muscle of the opposite side. Opinions vary as to the position of this centre. Landouzy places it in the posterior part of the inferior parietal lobule. Ptosis on one side only certainly is of use in differentiating a cortical lesion from one situated elsewhere, as it only occurs in such cases. A case has been reported where double ptosis existed, the autopsy

shewing disease of the corpora quadrigemina only. When bilateral paralysis of branches of the third nerve exists, the seat of disease is often found to be in the corpora quadrigemina.

Ptosis occurring in a case of crossed paralysis may indicate a lesion of the crus, but the whole of the third nerve is usually then involved. If the hemiplegia in the third paralysis comes on at the same time, it strongly indicates a lesion in this situation. Complete paralysis of the third nerve without any other symptom is most probably due to basal mischief.

Paralysis of the fourth and sixth nerves alone is also probably caused by basal disease, but the latter nerve is so liable to distant pressure that the lesion may be situated elsewhere. Paralysis of the sixth with hemiplegia of the opposite side points to pontine disease, the seventh being often affected also, as there is a very close relationship between the nuclei of origin of the two nerves. Bilateral myosis also frequently occurs in pontine lesions, but it does not aid us much in localisation, as it is found in disease elsewhere also.

Nystagmus—rhythmical movement of the eyes—occurs in many diseases of the nervous system, especially in disseminated sclerosis and hereditary ataxia. In tumours, especially those of the cerebellum, it is a symptom, and it is also found in cases of meningitis, thrombosis of sinuses, hæmorrhages, and in degenerative diseases of the spinal cord and brain.

We shall now deal with a very interesting and important part of my subject, the associated ocular palsies. Loss of convergence and accommodation is occasionally met with without any other defect, and points very strongly to the existence of a centre presiding over these associated movements. My colleague, Mr. Eales, has published a very remarkable case where there was absolute loss of convergence, accommodation, and the associated action of the iris, while all the other movements of the eye were normal. The internal recti muscles could move the eyes perfectly when the patient was asked to look to one side, but she was quite unable to converge. The patient gradually got better, and the lost movements were completely

recovered. This case, I think, absolutely proves the existence of a special centre. Movement of both eyes upwards is sometimes lost, and may be due to the lesions of posterior parts of the third centres, the levators being also frequently involved ; but there is probably a higher centre here also.

Paralysis of lateral movement conjugate deviation of the eye is one of the most important and frequent of the palsies falling under this group.

The third and sixth nuclei are intimately connected by a number of horizontal fibres. There are also fibres which connect the sixth on one side with the third on the opposite side, and they probably cross the middle line above the middle of the pons at the corpora quadrigemina. When the eyes look to the right the internal rectus on the left side and the external rectus on the right side are the acting muscles. The movement is affected through the sixth centre on the side to which the eyes are moved. The impulse to the external rectus coming directly from the centre on the same side, while the fibres which connect the sixth with the third of the opposite side are also stimulated, and so cause the internal rectus to act. There are strong reasons for assuming that a centre exists in the superior olivary body which initiates this movement, and it is also probable that there is a centre for it in the cortex as well. Conjugate lateral deviation is a frequent symptom of cerebral hæmorrhage, but the centre is sensitive, and therefore the symptom may be a distant one. In paralysis the deviation is towards the lesion and in spasm from the side of the lesion. When the centre is actually involved its fellow on the opposite side seems soon to take up its action. The same symptom may result from disease of the internal capsule or the pons involving the nucleus in the superior olivary body, but disease here differs from that affecting the cortex in that deviation in such a case is away from the lesion in paralysis and towards it in irritation ; and here also the symptom varies according as the disease involves or not the sixth nucleus ; if above the nucleus the eye cannot be moved towards the side of the lesion beyond the middle line, though

convergence may be unaffected; but if the nucleus itself is affected there is complete loss of power of the external rectus, so that the eye squints inwards.

If the fibres of the sixth are affected after they have left their nucleus the external rectus muscle is paralysed, and the internal rectus muscle on the opposite side unaffected. Conjugate deviation due to disease of the pons is generally a direct symptom. This symptom may therefore help the physician in deciding on which side of the brain a lesion exists, or in discriminating between a cortical or capsular lesion and one in the pons.

Deviation of one eye downwards and outwards while the other is turned upwards and inwards is a curious and unexplained symptom. It has only been noted where disease was found in the middle cerebral peduncle.

Periodical palsy is a rare variety. The third nerve is the one usually affected. The paralysis lasts for a few days and then passes off, to be followed by a similar attack in a few months. It usually comes on with sickness and severe headache, similar to what takes place in migraine. I have notes of one patient who has had over twenty attacks, each seizure lasting about three days. The pathology of the condition has never been determined. It has been suggested that it is due to vasomotor disturbance.

Disease of the fifth nerve causes in some cases trophic changes in the eyeball, but not always. Secretion from the mucous membrane and glands is lessened in paralysis of it, and increased in irritation. Sometimes a severe inflammation of the eyeball is produced leading to complete loss of the globe; but more frequently the symptoms are less severe, and we have a cloudy and ulcerated cornea. Neuro-paralytic ophthalmia is the name given to this condition. It does not always occur in cases of complete paralysis of the nerve, and Gowers considers that the inflammation is due not merely to interruption of the fifth nerve, but to irritation of it; and from clinical and pathological observations, it is probable it is more severe when the

Gasserian ganglion or the nerve fibres immediately in front of it are involved. Herpes zoster also is common when the fifth nerve is diseased.

Paralysis of ocular nerves is of most value to the physician when occurring in connection with other symptoms of nervous disease. When the nuclei of origin of the nerves are involved, one of the degenerative diseases of the spinal cord or brain is usually found, or else a history of syphilis can be elicited. Tumours of the base are liable to involve the trunks of the nerves, and cause paralysis by pressure.

Loss of any of the associated movements of the eyeballs points strongly to cortical disease. It is certain that all these motions are originated by cortical centres, though we have not as yet been able definitely to locate them. Two reasons make this difficult: Firstly, they are extremely sensitive, and therefore liable to suffer from distant pressure; secondly, the corresponding centres on the opposite side seem quickly to take up the lost function. There is most agreement about the situation of that for the lateral movement of the eyes and elevation of the eyelids, which is placed at the posterior half of the upper and middle frontal convolutions.

ON THE DIAGNOSIS OF DEFECTIVE MUSCULAR POWER OF THE STOMACH.

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THE question of the muscular integrity of the stomach is one of great importance to the practical physician, since defective power of contraction is at the root of much of the dyspepsia which is so common nowadays; and I think no one will deny that unless some means of checking the rapid increase of indigestion be found, there will be a rapid deterioration of our national stamina in the near future.

Muscular failure is not of course the only factor in the causation of atonic dyspepsia, but it is the one which renders many cases so obstinate in character. It is the main factor, I believe, in a very large class of cases where the disease is not very evident, although none the less potent, viz., in the milder cases of atonic dyspepsia. Defective muscular power naturally involves a proportional degree of dilatation, and, what is of greater importance, it means defective churning and agitation of the food during the process of digestion, together with retention of the food in the stomach for an abnormally long period of time and the evils consequent thereon.

The causes of this condition are very numerous; but I think most physicians will agree in the assertion that the habit of taking late suppers is of all others the most potent. The healthy stomach, as we know, can complete the act of digestion and expel its contents even during sleep, but a lowering of its vitality from any cause, such as the spread of catarrh to it in course of an ordinary cold, will deprive it of this power, and result in the retention of the food in the stomach till morning. Thus the occurrence of minor degrees of fermentation is rendered possible, and the stomach is further irritated by the products thus formed. Recurrent attacks of this nature may, in the course of years, lead to confirmed atonic dyspepsia and dilatation.

Dilatation may often arise from a simple catarrh in another way, viz., on account of the patient mistaking the increased appetite which is so often the first sign of catarrh having spread to the stomach. He endeavours to appease his appetite without success, and only causes a dilatation of his stomach by overloading it, and increases the irritation which he is misinterpreting as appetite. The condition subsides after a few weeks, but only to be renewed after the next catarrhal attack, and with each recurrence becomes rather more persistent.

This atonic condition is very chronic and very insidious, often creeping on without the knowledge of the patient and slowly undermining the health. The prime factor is, in my opinion, muscular weakness. In consequence of this, the stomach is not emptied, and the mucous membrane suffers by

being deprived of its night's rest. I believe that a very large number of those around us who are "not quite up to the mark," and yet cannot point to any specially weak spot, are suffering from atonic dyspepsia of this type.

How are we to recognise this condition? It may give rise to no symptom that will draw attention to the stomach, and the patient may absolutely deny that the digestion is weak. The symptoms and signs are variable, but nevertheless definite enough where carefully looked for.

The tongue may give the well-known signs of an atonic state of the stomach, palor and flabbiness with often a thin fur. The appetite may be and often is unusually good; it may on the other hand be defective. There may be and often is a sense of drowsiness or languor after meals. Pain in the slighter cases, and especially in those who are careful as to diet, may be unknown. There is however a great tendency to sick headaches from fermentative changes in fats, etc., and this class of patient will own to being very chary as to indulgence in pastry and similar food containing baked fat. There is often a tendency to constipation but this is not at all essential.

The sleep is often disturbed and unrefreshing, and I believe that a considerable proportion of the insomnia with which we have to deal can be traced to the presence in the stomach of irritating remnants of the last meal even though that be taken three or four hours before bed-time. It is rather a peculiar, but I believe a true observation, that these patients will often sleep more soundly after a late supper than after a dinner taken at six or seven o'clock. The awaking in the morning is however not satisfactory, being characterised by a sense of oppression and fulness in the head, lack of appetite, and it may be nausea, and the patient will prefer the early meal with less sound rest to the late meal with heavy sleep and morning headache.

It is however upon the physical examination of the abdomen that the greatest reliance can be placed. It will be found that the succussion sound which can normally be got soon after drinking can in these cases be obtained for some hours after a

meal, thus shewing that the stomach walls instead of being firmly contracted and preparing to expel their contents are, instead, lax and inert. This succussion sound is best obtained by a series of sudden but not too forcible taps or jerks with the finger tips on the epigastrium just as the abdominal wall is receding at the end of expiration. The wall is then lax and the stomach is most easily reached. In cases of the type in question the stomach will be found to reach as low as or lower than the umbilicus, and its area may be defined by the ordinary methods of physical examination. These cases are to be distinguished from the severer forms of muscular failure by the fact that the muscular power, although deficient enough to cause, in conjunction with the attendant catarrh, the ill health and symptoms in question, yet suffices to effect a complete renewal of the stomach contents every twenty-four hours or so, and thus there is no permanent residue such as would render the occurrence of the more serious forms of fermentation (*e.g.*, *sarcinæ*) possible. In these milder cases therefore the indication for washing out the stomach is not so definite as in the severer degrees of dilatation, and we have to rely more on tonics and other aids to digestion.

I now come to the consideration of the more serious cases of muscular failure, namely, those embraced under the term *gastrectasia* or dilatation proper. These may be divided into two classes, namely, those where the muscular failure is due to organic disease of the pylorus, *e.g.*, fibrous contraction or carcinoma, and 2nd, where there is no such obstruction but where the dilatation is due to a primary weakness of the muscle and the fermentation which results therefrom in the manner so well known to all practitioners.

I need not go at all fully into this question of dilatation of the stomach, not only because it is so well known but also because it is treated in a most able and exhaustive manner by Dr. C. A. Ewald in his lectures on Diseases of Digestion. This book, embodying as it does the result of much careful observation and research, I am glad to say we shall shortly have in our own language, thanks to the energy and ability of Dr. Saundby, who has translated it for the New Sydenham Society.

The means of diagnosis at our disposal may be divided into (1) the ordinary manipulative methods and (2) chemical methods. Under the first heading we have—

(a) *Inspection*, a means which is often all that is needed to make the diagnosis, not only of the dilatation, but also of its cause.

(b) *Palpation*, especially that form above mentioned, for eliciting the succussion sound.

(c) *Percussion*, either ordinary or supplemented by the distension of the stomach either with CO₂ from the administration of bicarbonate of soda followed by an acid, or, preferably (as recommended by Dr. Ewald), with air by means of a stomach tube and syringe or force pump. Percussion may also be made to give fuller information by ascertaining the amount of dulness produced in the epigastrium by successive measured amounts of liquid swallowed.

(d) *Auscultation* yields but little information by itself. I have however been in the habit for many years of combining it with percussion in a way that yields very useful results. The method is based upon the observation that when the air in the stomach is set in vibration by a sharp but gentle blow from a percussion hammer, or better by means of a fillip with the finger, the sound is heard much more plainly on listening with a binaural stethoscope over the stomach area than just outside it. Care must be taken always to strike the abdominal wall at the same distance from the stethoscope, so as to avoid the fallacy that would otherwise arise. In this way I have often been able to map out the area of a stomach that was not definable on ordinary percussion.

(e) *By Measurements*. The capacity of the stomach can be measured by means of the stomach tube in various ways. In all the methods hitherto mentioned there has been none that could give us accurate information as to the extent of the deficiency in the stomach's muscular power. By measurement we can do this. The patient is given a "test breakfast," of measured amount, which, after an hour or so, is removed by

the stomach tube, and the activity of the stomach is shewn by the amount that has been expelled in the time allowed.

For the full discussion of these methods I cannot do better than refer you again to Dr. C. A. Ewald's book or to Dr. Saundby's translation.

We now come to the chemical method. The first devised was that of Ewald and Sievers who, although not the first to suggest it, were the first really to work it out as one of practical utility. The method is based upon the chemical peculiarities of Salol. This substance is a compound of salicylic acid and phenol. In acid solutions it is stable, whereas in alkaline solutions it is immediately decomposed into its constituent parts. Salol, as such, is not absorbed from the stomach. Its constituent substances therefore do not appear in the urine so long as the salol remains in the stomach. These facts have been clearly demonstrated by experiments. As soon however as it enters the duodenum it is broken up by the action of the alkali there found, and the salicylic acid at once appears in the urine, and can be readily detected on account of its violet reaction with a neutral solution of perchloride of iron. This fact was utilised by Dr. Ewald for the purpose of shewing how soon after a meal the stomach *commences* to empty itself, thus giving an indication of the activity of the muscular wall.

This method is to give gr. 15 of salol after the chief meal in the day and then observe the time that elapses before the salicylic acid appears in the urine. Very minute traces may be detected by the following means:—Acidify some of the urine with hydrochloric acid, then shake it with ether and decant or remove the ether with a pipette. Let it evaporate and redissolve the residue in water; then in this aqueous solution the salol is very easily recognisable by means of the perchloride of iron. Dr. Ewald found that normally the salicylic acid appeared in the urine in 40–60 minutes or at latest in 75. Where the power of the stomach was deficient this might be delayed to 120 minutes or more.

Dr. Leo Silberstein, in *Deutsch. Med. Woch.*, February, 1891, pointed out that there was likelihood of some error here, since

observers have found that the contents of the upper portion of the duodenum are often slightly acid.

Further, various observers have found considerable variations in the time of appearance of the reaction under normal conditions, and even in the same individual, and there seemed to be great difficulty in fixing a time that could be considered as the physiological limit as distinct from the pathological.

In 1889 Huber observed that the time of *disappearance* of the reaction from the urine varied in different cases, and made observations which suggested that a more useful diagnostic might be obtained by observing the time of disappearance of the salol from the urine instead of the time of its appearance.

Dr. Silberstein carefully investigated this, and found that normally it was all excreted within 24 hours; only in two instances out of twenty-four did the time exceed 24 hours. Again, he tried it in twenty-six cases of undoubted dilatation, and in none of these did the reaction cease before 30 hours; and in the more severe cases salicylic acid was still to be detected for 48, 56, and even 72 hours; and he moreover found that the amount of delay was proportional to the severity of the case. In atonic dyspepsia he found delayed elimination of the salol, but not to the same extent as in dilatation proper, the limit rarely exceeding 36 hours. He tested in all seventy-six cases, making one hundred and forty-eight observations, and sums up his results as follows:—

1. Normally, salol is almost invariably excreted within 24 hours.
2. The time of excretion by persons who have no muscular weakness of the stomach is practically normal.
3. In dilatation of the stomach the elimination is always delayed, and salicylic acid can be detected in the urine for more than thirty hours. Thus the dilated stomach can easily be differentiated from the stomach that is simply displaced.
4. In simple atony of the stomach delay is the rule, and only exceptionally is the time of elimination normal.

Excretion delayed to the extent of 36 hours is rare in simple atony, but the rule in dilatation.

The observations here brought forward seem so convincing that further experiment is scarcely necessary, I have however made sufficient to satisfy myself as to the reliability of salol as a means of diagnosis.

The observations which I have been able to make, mostly on patients under my care at the General and Jaffray Suburban Hospitals, with the kind assistance of Dr. Russel and Dr. Max Sully, go to confirm those of Dr. Silberstein. I found that as a rule the salicylic acid disappeared from the urine within 24 hours, and often within 15 or 16 hours; whereas in atonic dyspepsia and dilatation of the stomach it was delayed; in one case to the extent of 87 hours. The only apparent exceptions were one or two cases of nervous disease where the excretion was delayed, and two cases of phthisis. In the former it seemed possible that the explanation was to be found in the atonic state of the alimentary canal as evidenced by obstinate constipation, or it may have been due to some nervous defect in the stomach itself. This is a point for further observation. In two cases of phthisis the excretion was delayed, and to a greater extent apparently than was to be expected from the condition of the stomach.

This method is a most important addition to our means of diagnosis of the ailments of the stomach, and it is perhaps of more value here than on the continent. Dr. Silberstein speaks of it as not equal to the "test breakfast" method already referred to, in which a measured amount of food is given, and then after two hours or so the remnants are removed by the œsophageal tube and measured, to shew how far the stomach has emptied itself. This is all very well in hospitals, but I fear that an Englishman resents parting in this way with his breakfast when it is once safely housed, and that we would not be afforded the opportunity of *treating* our dyspeptic patients if we endeavoured to *diagnose* their ailment in this way. I therefore welcome this salol method. Its great importance, in my opinion, lies in the fact that in it we have a means of determining whether in a case of a moderately dilated stomach it is necessary to proceed to the washing out of the organ or not.

If we find that the stomach completely changes its contents once every 30 hours or so there is not much fear of the growth of *sarcinæ* and other powerful ferments. We have, moreover, in salol an easy means of seeing whether our treatment is taking effect, and the stomach recovering its muscular power. If, on the other hand, we find that the stomach does not completely renew its contents in 36 hours, but some of the salol still remains up to this time, and continues to find its way into the intestine at each partial emptying of the organ, we have reason to fear the growth of fungi, and that the stomach will not recover itself without the rest that is afforded by washing it out each evening.

The experiment is an extremely simple one to make, and takes only a few minutes. The salol (gr. xv.) is given after dinner. The patient saves the urine passed at dinner time next day, and if this latter shows an absence of salicylic acid by giving no violet reaction on the addition of a few drops of liq. ferri perchlor. the stomach may be accounted normal as regards its muscular power. If, on the other hand, the salicylic reaction is still present another sample is saved on the evening of this the second day (*i.e.*, 30 hours after administration), and again next morning, and if the reaction continues present a sample is saved every six hours till it ceases.

The test takes only half a minute. If the ether method is resorted to it will take three or four minutes, together with a wait of three or four while the ether evaporates, unless some hot water is at hand to hasten this process. This process is however unnecessary, except where scientific accuracy is desired. This useful diagnostic method is therefore well within the range of every practitioner of medicine, and will I hope come into general use, for I feel persuaded that it will be found of service, not only by clearing up many an ill-defined case of ill-health, but also, by enabling us to judge of the effects of our remedies upon the stomach, it will help us to attain a more satisfactory method of treating atonic dyspepsia than that which we now possess.

CLINICAL LECTURE ON TUBERCULAR DISEASES OF THE TESTICLE:

DELIVERED AT THE GENERAL HOSPITAL, BIRMINGHAM,

BY GILBERT BARLING, F.R.C.S.

Gentlemen,—

We have recently had in the wards two cases of this disease, and you have seen in the out-patient room other examples. From this you may gather that the disease is not an uncommon one, and you will have learnt that it presents itself in varying degrees of intensity, some cases being chronic and with but a small portion of the organ affected, others being much more acute and of greater extent. The man recently in ward 8 is an example of the first kind, and the patient in ward 9, who has undergone double castration, of the second. My intention to-day in bringing this subject before you is to draw your attention to the serious prognosis attached to tubercular disease in the testicle, and to the necessity, in a number of cases, of dealing with it by castration.

In advising patients with tubercle of the testicle, when the diagnosis is quite clear, and it generally is, I counsel them to get rid of the diseased organ, or it may be organs, if there is no other tubercular disease recognisable in the body. It may be that the patient declines to accept the advice, and if he does so, knowing the possibilities before him, there is nothing more to be said; his decision is generally controlled by sentiment, which it is easy to understand but not easy to combat.

It is, of course, useless to remove the testicle if other parts of the genito-urinary system are already involved, unless, as sometimes happens, the organ is suppurating freely, and causes the patient pain and inconvenience. The patient in ward 8, to whom I have already referred, had one seminal vesicle, the bladder and one kidney involved as well as the testicle, therefore, as the last was not causing inconvenience, it was left alone.

The patient in ward 9 shewed no definite evidence of other tubercular lesion, hence both testicles were removed, partly because the enlarged and inflamed organs were an inconvenience, and partly because the disease, owing to its acute development, was more likely than usual to spread to adjacent parts.

Judging from what I know of the practice of many surgeons, and from the advice given in text books, opinion is by no means unanimous as to the necessity for removal of the affected organ, hence I bring the subject before you to-day to explain why such a disagreeable remedy as castration seems to me to be called for. It is recognised that tubercular disease commencing in the testicle may spread to the parts about the base of the bladder and even to the kidneys, or possibly may give rise to infection of more distant parts of the body by the blood or lymph stream. But from this it has not followed as a corollary that removal of the affected organ is called for to prevent local or general extension of the disease. For this want of harmony between theory and practice there are probably several reasons.

The belief that local extension may occur to the seminal vesicles, bladder, or even to the kidneys is perhaps only held as a "pious opinion," but it should be more seriously held. Here is a case which illustrates this point:—A gentleman, when 22 years of age, had a hard nodular thickening in each epididymis, matter formed and sinuses resulted, but there was little trouble or discomfort resulting. He went to Australia and lived there seven years, at the end of which time he began to have painful and frequent micturition. When I saw him a year later there was invasion of the left seminal vesicle, prostate, and bladder, and examination of the pus in the urine shewed tubercle bacilli.

The two cases now to be mentioned are examples of both local extension and general infection. A medical man, when about 28 years of age, discovered that he had something the matter with one testicle, there was a hard irregular mass in the lower part of one epididymis. This eventually suppurred, but

the sinus dried up in a few months, and no inconvenience was felt from the testicle, only a hard nodule remained. I saw him about five years after this, when he complained of occasional painful and frequent micturition with hæmaturia, which led to the belief that the base of the bladder was becoming involved. These symptoms became more troublesome, but he still went about his work until three years later he died of tubercular meningitis.

At the present time I have under observation J. N., now 29 years of age. When 23 he was kicked on the testicle by a colt. An enlargement of the left epididymis was the result after the acute symptoms disappeared, and this enlargement suppurated. The suppuration ceased, leaving a hard nodular patch which gave no trouble. Two years later the left seminal vesicle was found to be enlarged, hard, and irregular, but the bladder then and since has remained healthy. At the present time the patient is suffering from tubercular osteitis of the dorsal vertebræ, with curvature and abscess.

The extension locally may take place either by the disease spreading all the way along the vas deferens, or, I think quite often, by tubercular matter breaking into the tubes of the epididymis and travelling with the semen into the seminal vesicles and inoculating these cavities. Once this has happened, extension by continuity of tissue to the prostate and bladder is easy. General infection from tubercle of the testicle occurs in the same way that it may from any other tubercular focus, most commonly by a tubercular endarteritis.

The cases quoted above point clearly and distinctly to the testicle as the starting point of the subsequent troubles, whether local or general. By those opposed to castration I think the frequency with which extension of the disease takes place is underrated. Of those cases which have been under my own observation I should say that the majority have had invasion of other parts of the genito-urinary system; and though willing to accept the possibility of extension down the vas deferens from the bladder to the testicle, I am perfectly certain that the reverse usually obtains.

Two other arguments against castration are also used : one is, that the disease in the testicle may become quiescent and obsolete ; the other, that the testicular infection may be only part of a general one. It is true that spontaneous cure may occur here as in other parts of the body, but I think it is uncommon. I have mentioned to you one case of extension to the bladder seven years after the affection of the testicles was first noticed, and I have shewn some of you a patient whom I have watched for nine years, and who has double tubercular disease of the testicle. This smoulders quietly on with occasional slight suppurations, but so far I find no extension to the seminal vesicles or other parts, yet one always feels that this may overtake the patient at any time. In my experience this quiet smouldering of the disease is a good deal commoner than cure.

With regard to the possibility of other infections taking place simultaneously with the testicular, all owning a common source, there is no doubt that this does occasionally happen, and I sometimes see a boy who was brought to me five years ago with tubercle in the testicle, in the tarsus, one metacarpal bone, and one supra-trochlear gland. All these lesions appeared to arise simultaneously, but the testicular one was the most acute, and as it gave rise to much enlargement and to suppuration the organ was removed, all the other lesions clearing up in a couple of years without operation, and the child is now quite well.

Because it occasionally happens that multiple tubercular lesions arise in this way, it has been argued that commonly, when the testicle is infected the bladder and other parts will also be simultaneously involved. Hence it is said the disease in the bladder arises not by extension and it is useless to castrate. The cases I have mentioned however are sufficient to shew, by the interval which elapsed between the enlargement of the testicle and the onset of bladder symptoms, that extension is the more reasonable explanation.

The anatomical facts of the arterial supply to the testicle, and to the base of the bladder, are against this simultaneous infection. The spermatic artery and the vesical arteries are separated

at their origins by several inches, so that tubercular emboli are not more likely to enter simultaneously the spermatic and the vesical arteries than they are the spermatic and the mesenteric or the nutrient artery of the femur.

A word as to the condition of the testicles for purposes of procreation. Seeing how commonly the epididymis is involved, it is only reasonable to suppose that its tubules are quite often blocked by the tubercular thickening, and are so rendered sterile. Further, in two cases in which I have performed double castration, and in a third of which I have cognisance, sexual desire was completely absent. I have explained to you at some length my reasons for advising castration in this disease. One consideration that weighs with me very forcibly is the miserable condition of patients with tubercular disease of the bladder and prostate, for whose relief we have very little to offer. It is the more important, therefore, that we should prevent the bladder trouble arising by removal of the testicle, whence it often extends, especially as castration is practically without risk.

REPORTS OF CASES.

SIX CASES OF UTERINE MYOMA, ILLUSTRATING VARIOUS METHODS OF REMOVAL OF THE TUMOUR.

BY CHRISTOPHER MARTIN, M.B., F.R.C.S.
SURGEON TO THE HOSPITAL FOR WOMEN, BIRMINGHAM.

Case 1. *Large Sub-mucous Myoma; dilatation of cervix; removal per vaginam.*—A lady, 42 years of age, consulted Mr. Lawson Tait in the early part of 1891 in consequence of severe and repeated floodings. She had been married ten years but had never been pregnant. Menstruation commenced

at the age of 15, and until she was 38 years old had been regular every four weeks, lasting five days, scanty and painless. At this time she sustained a great mental shock. Soon after, she began to have pain at her periods. This increased each month, and finally became dreadfully severe. When about 40 years of age the menstrual pain became somewhat less agonising, but the flow became more profuse. The periods now occurred every two weeks, lasted seven days, were extremely profuse, and horribly painful. She was thus only a week free from loss, and during this interval there was a profuse watery flow. In consequence of the repeated hæmorrhages she became extremely anæmic, the arms and legs became œdematous, and the general weakness alarming. A distinguished London gynecologist diagnosed malignant disease of the uterus, and advised that vaginal hysterectomy should be performed. She then consulted Mr. Lawson Tait. On examination, the uterine fundus was found uniformly enlarged. The cervix was healthy, and the uterus, though heavy, movable. The os was closed.

She was admitted into Mr. Tait's private hospital and the cervix was dilated. Then, on introducing the finger, a smooth firm, globular tumour was felt filling the cavity of the uterus. This was almost sessile on the uterine wall, the pedicle being thick and short. It was removed through the dilated cervix with great difficulty, the mass being partly enucleated and partly cut away with scissors. The base or pedicle was then divided with curved scissors, and the rest of the tumour removed. The patient recovered without a bad symptom, and has since become perfectly well. Her periods are now regular, moderate in quantity, and without pain. The tumour weighed about four ounces.

This case shews the value of an exploratory dilatation of the cervix in cases of doubt. Had it not been done, she would probably have undergone vaginal hysterectomy—an operation which would have been most unjustifiable and, in her weak condition, almost certainly fatal.

Case 2. Interstitial Myoma; enucleation per vaginam.—

This patient was sent to Mr. Tait by Dr. Nason, of Nuneaton, in the early part of February, 1891. She was single and 30 years of age. Menstruation commenced at the age of 14, and was usually regular every four weeks, lasting six days, always fairly profuse, but not painful. She was the picture of health until December 17th, 1890, when towards the end of her period a severe flooding occurred. This lasted two hours, and the next day, when it recurred, it lasted three hours. She saw nothing more till her next period, in January, 1891, when the hæmorrhage returned. It was very severe, and was repeated at frequent intervals from January 10th to January 13th. During the night of January 13th she had a most alarming flooding, became extremely faint, lay gasping for breath, and in fact nearly bled to death. Dr. Nason was called in, and controlled the hæmorrhage. On examination, he found a uterine myoma.

In the early part of February she was admitted into Mr. Tait's private hospital. On examination, the uterus was enlarged to the size of a cocoa nut, and bulging down into the vagina and back into the hollow of the sacrum. It was firm and elastic, and packed tightly in the pelvis. The cervix was felt on the anterior surface of the presenting pole of the tumour, and was thinned out over the mass; but the os would not admit the exploring finger. The cervix was dilated with Mr. Tait's uterine dilators up to No. 3. The exploring finger now passed into the cavity of the uterus in a direction forwards and upwards in front of the tumour. This was oval, elastic, and somewhat soft, evidently an interstitial myoma growing in the substance of the posterior wall of the uterus, and bulging forwards towards the cavity of the uterus, backwards towards the hollow of the sacrum, and downwards towards the perineum. It was quite sessile, there being no pedicle. Mr. Tait divided the capsule through the uterine cavity, and enucleated the tumour from its muscular bed. The mass had to be removed piecemeal, and the operation was a most arduous one. Finally, however, all was removed. The immediate hæmorrhage was controlled by

means of plugging the vagina and the administration of ergot. The plugs were removed in a few hours, and after this the uterus was irrigated twice daily by means of a double-channelled uterine catheter. She made an uninterrupted recovery, and returned home on February 20th. She has had no recurrence of the hæmorrhage, and is now in excellent health.

Case 3. Sub-peritoneal Myoma; abdominal myomectomy.—This patient was sent by Dr. Relton, of Rugby, to Mr Tait in August, 1891. She was single, and 28 years of age. Menstruation began at the age of 15, was regular every four weeks, lasting from four to seven days, always profuse, but, until twelve months ago, was not painful. She was in good health until August 8th, when she was seized with violent pain in the abdomen, with diarrhœa, sickness, and difficulty in making water. These symptoms continued, and on August 10th she discovered a swelling in the lower abdomen. The diarrhœa and sickness diminished, but the difficulty in micturition continued, and the abdomen daily became more enlarged. She was sent to Mr. Tait on August 18th.

On admission, the abdomen was found to be greatly enlarged by a cystic swelling rising out of the pelvis and reaching to midway between the ensiform cartilage and the umbilicus. This swelling was somewhat tender, and fluctuated freely. It was unilocular, and silent under the stethoscope. Per vaginam, a hard, round, fixed, solid tumour was felt jammed into the pelvis behind the uterus, and crowding the latter forwards against the pubis. On passing a catheter, five pints of healthy urine were drawn off, and the abdominal swelling to a large extent disappeared. It was thus evidently only a distended bladder. The abdomen was opened, and the pelvic mass pulled up out of the pelvis. It was found to be a sub-serous myoma attached to the right corner of the uterus by a muscular pedicle. The rest of the uterus appeared normal. The myoma, which was as big as a cocoa nut, was drawn out of the wound, and its pedicle secured with a wire *serre-nœud*. The tumour beyond this was cut away and the stump treated extra-perito-

neally. The patient suffered from slight cystitis for some time, but this eventually disappeared ; otherwise her recovery was uninterrupted.

In this case there was such extreme distension of the bladder that an ovarian cyst might have been diagnosed. It illustrates the value of the rule always to pass a catheter in cases of doubtful abdominal cystic tumours. The tumour had probably been floating freely in the peritoneal cavity, attached by its narrow pedicle to the fundus of the uterus. On August 8th it became impacted in the pelvis, and by its pressure against the pubis caused retention of urine. As neither the uterus nor the appendages were removed, menstruation has not been interrupted.

Case 4 *Multinodular Myoma ; abdominal hysterectomy.*—F. D., single, 36 years of age, consulted Mr. Tait in May, 1891, at the Hospital for Women, complaining of a swelling in the abdomen and repeated floodings. Menstruation began at the age of 11, and, until three years ago, was regular every four or five weeks, lasting two or three days, scanty, and always very painful. About three years ago the periods became more profuse and irregular. She was now unwell every two or at most three weeks, and the loss would last ten or fourteen days. Large quantities of clots would pass, and sometimes a great gush of pure blood. On the other hand, the periods ceased to be so painful. She suffered from bearing down, aching pains in the back, and great weakness.

On examination, a firm, rounded, solid, but movable tumour could be felt rising out of the pelvis and reaching to two inches above the umbilicus. Attached to its left side were two smaller freely mobile masses also solid and firm. A loud *souffle* was heard over the right side of the tumour. Per vaginam, the cervix was drawn up and reached with difficulty. It was soft, and admitted the finger tip.

On the 3rd of May Mr. Tait performed abdominal section, and found a large multinodular myoma, chiefly interstitial, with several smaller sub-serous masses attached. The vessels

of the right broad ligament were enormously large. The ligament was transfixed with a needle carrying a double ligature, and the vessels secured. The tumour was then removed by the operation of hysterectomy, the stump being treated extra-peritoneally with the wire *serre-nœud*. The patient made a good recovery and remains well.

On splitting open the tumour, there was found in the uterine cavity attached to the fundus a polypus about the size of a fig, flattened, and covered with recent blood. The chief hæmorrhages evidently came from this polypus. The uterine cavity was so buried in a dense mass of myoma that it would have been impossible to have successfully removed this polypus per vaginam, or even to have ascertained its existence. It is instructive to compare with this one Cases 1 and 2, where the tumour was easily reached through the cervix.

Case 5. *Interstitial Myoma ; enucleation by abdominal section.*—Mrs. T., æt. 31, came to the Hospital for Women some weeks ago complaining of great pelvic pain and increasing difficulty and pain in micturition. Menstruation was very painful but not profuse. She had never had any children.

On examination, the uterus was found enlarged and pushed backwards and downwards by a smooth, rounded, elastic, almost fluctuating tumour, which lay between it and the bladder. The bladder was compressed between the tumour and the pubis. As the symptoms were urgent, she was at once admitted into the hospital.

Mr. Tait opened the abdomen and found a smooth soft myoma embedded in the anterior wall of the uterus. He split open the muscular capsule of the tumour and enucleated the mass from its bed. The uterine cavity was not opened. The capsule was then firmly sutured with deep and superficial strands of silkworm gut, which were passed deeply into the muscular substance of the uterus to control bleeding. A drainage tube was inserted into the peritoneal cavity, and the wound closed.

The patient had a very hard fight for life. The cavity in the

uterine wall from which the myoma had been removed filled with blood. On the fifth day this was felt, on vaginal examination, as a tense rounded mass as large as the original tumour, and precisely in the same situation. At the same time the pulse rose to 130, and the temperature to 103°F., the tongue became foul, the expression pinched and anxious, and the abdomen hard, fixed, and tympanitic. Bilious vomiting became frequent, and the patient lay for some days in a most precarious state. Her bowels were freely opened with calomel and turpentine enemata, and her strength maintained with nourishing fluid diet and stimulants. She finally recovered, and is now going about again. The effused blood has nearly all been absorbed, and the uterus is approaching its normal size.

Case 6. *Interstitial Myoma; dilatation of cervix; division of the capsule; spontaneous extrusion of the growth.*—Mrs. C. consulted Mr. Lawson Tait about two months ago in consequence of severe menorrhagia. She was 32 years of age, and had been married thirteen years. She had had four children, the last eight years ago. She had had no miscarriages. Until about eighteen months ago she enjoyed excellent health. Her menses commenced at the age of twelve, occurred every three weeks, lasted five days, and were neither profuse nor painful. Eighteen months ago they became gradually more profuse; the periods lasted eight days; came on regularly every three weeks, but were still painless. About six months ago, the losses becoming severe, her medical attendant examined her and applied tincture of iodine to the interior of the uterus. A fortnight later a violent flooding occurred, and since then she has had from time to time similar attacks. Mr. Lawson Tait, on examining her, found the cervix enlarged and spongy, but not admitting the finger. The body and fundus of the uterus were enlarged, tense, and hard. The uterus, as a whole, was movable. The patient was suffering from marked anæmic symptoms—pallor, breathlessness, giddiness, and general weakness.

The cervix was dilated with a good deal of difficulty, the os internum being very rigid. After full dilatation the finger was

introduced, and discovered an interstitial myoma as large as the foetal head embedded in the substance of the posterior wall of the uterus, and bulging, but very slightly, towards the cavity of the uterus. The tissues lying between this tumour and the cavity of the uterus were freely incised, the muscular capsule of the growth being thus laid open. The extrusion of the myoma was then left to nature, the uterus being irrigated with hot water thrice daily. At the end of sixty hours the patient began to have intermittent pains like labour pains. On examination, the cervix was found to be widely dilated, and through it a soft, elastic, spongy mass, about the size of a large orange, protruded. This was seized with vulsellum forceps, and without much difficulty a large mass of myoma was removed, partly by twisting it out of its bed and partly by dividing its base with long curved scissors. A portion about the size of a hen's egg was left *in situ*. On the fifth day a piece the size of a walnut came away; on the tenth day the patient was anæsthetised and the remnants of the myoma removed by means of the sharp spoon. The empty uterus now felt remarkably like a uterus of a woman recently confined; it was large, soft, succulent, and flabby. The cervix was soft and patulous, and there was a free "lochial" discharge. A mixture, containing chlorate of potash and ergot, was given, and perfect rest in bed enjoined. Under this treatment the uterus became steadily smaller. The patient at the time of writing this report was still under observation, but quite convalescent. From the second to the fifth day the discharge became offensive, and there was a moderate degree of pyrexia. She had however no other bad symptoms, and the temperature fell as soon as the great bulk of the necrosing myoma had been removed.

It was remarkable in this case with what difficulty the rigid cervix was dilated artificially for the purpose of exploring the uterus with the finger, and with what ease its dilatation was effected in the efforts of nature to extrude the growth. The cervix had lost all its early rigidity and become soft, succulent,

and dilatable before the tumour presented, and even before uterine pains were felt.

Remarks.—I have recorded these six cases as they illustrate six different modes of removal of myomata. In Cases 1, 2, and 6 the growths were removed per vaginam after previous dilatation of the cervix with Tait's dilators. In Case 1 it was sub-mucous and almost polypoid, and the only difficulty was the size of the mass, which necessitated its removal with the scissors piecemeal. In Case 2 it was interstitial, and was enucleated from its capsule with great difficulty, but at one sitting. In Case 6 it was also interstitial but so embedded that all that could be done was to divide the capsule and allow the uterine contractions to extrude the growth from its bed and convert it into a polypus. It was then removed in a state of necrosis. In Cases 3, 4, and 5, the tumours were removed by abdominal section. In case 3 there was but one myoma, and this was sub-peritoneal and attached to the uterus by a long muscular pedicle. This was secured with a wire serre-nœud in the lower angle of the wound and treated extra-peritoneally. In case 4 the growth was a multinodular myoma reaching to above the umbilicus. Nothing short of removal of the diseased uterus (including the appendages) by hysterectomy was feasible. The pedicle, consisting chiefly of the cervix, was fixed with a wire serre-nœud in the lower angle of the wound and treated extra-peritoneally. In case 5 the myoma was interstitial but bulging towards the peritoneal surface of the uterus. The capsule was split open from its peritoneal side, the tumour shelled out of its bed, the cavity closed with silkworm gut sutures, and the uterus then dropped back into the abdomen. Here the appendages were not interfered with and no intrinsic portion of the uterus was removed.

Given a case of myoma of the uterus, with symptoms demanding surgical interference, how must we attack it?

1. If there be grounds for believing that it is polypoid, or sub-mucous, single, and of moderate size, the cervix should be dilated, the uterus explored with the finger, and the growth removed *secundum artem*.

2. If it be interstitial, bulging towards the uterine cavity so as to approach the sub-mucous form, and if it be single and of moderate size, the cervix should be dilated, the capsule of the tumour incised freely, and the growth enucleated. If possible, it should be completely removed at one sitting, otherwise the patient will run the risk of blood poisoning from the absorption of noxious matter from the necrosing myoma.

3. In other cases, where from its large size, its position in the uterine wall, its peculiarity of growth or structure, or from other circumstances it is not practicable to remove it per vaginam, abdominal section must be performed. Several courses are now open.

(a) If the tumour be sub-peritoneal, single, and have a long pedicle, this may be secured with a stout double ligature, or more safely with a wire *serre-nœud*, and the mass cut away beyond. Here neither the uterus nor the appendages are removed.

(b) If the growth be multinodular and of not too great a size, if the patient be not past the menopause, and the appendages are accessible and removable, they should be removed and the tumour left. As the climacteric thus induced advances, the myoma shrinks, ceases to trouble, and may entirely disappear.

(c) If the growth be of large size, or of the soft oedematous variety and growing rapidly, or if the tumour continue to grow after the menopause (natural or artificial), or if the appendages are inaccessible and irremovable, hysterectomy is indicated. This, one of the most grave operations in surgery, must not be decided on rashly or without very careful consideration.

(d) I am not favourably impressed with the operation of enucleation by abdominal section. I regard it as even a more risky proceeding than hysterectomy. It can only be required in very exceptional cases.

A CASE OF DIABETES INSIPIDUS
PERMANENTLY CURED BY AN INTER-CURRENT
ATTACK OF MEASLES.

BY ALFRED HARVEY, M.B.

H. F., aged 3 years and 2 months, the youngest of ten children of strumous diathesis but of healthy parents, fell down stairs on April 15th, 1890. The fall was followed by vomiting, which soon passed off, and by fright, which was more lasting. It was soon noticed that the urine was increased in quantity, and that there was an increase in frequency of micturition.

When I first saw H. F., on April 19th, she was well nourished, the weight being 30 lbs.; very timid, especially at the sight of the stairs; there was loss of appetite and constipation, but no marked thirst; the urine was colourless, of sp. gr. 1002, and free from sugar or albumen. On measurement, the quantity passed in twenty-four hours was found to be fourteen pints. The various organs were all healthy.

The treatment adopted was liquid extract of ergot, beginning with m v. doses, together with Parish's syrup and cod liver oil; a nourishing diet and fresh air were recommended. Ergotine in doses commencing with gr. ss. was substituted for the ext. ergot. liq. Under this treatment the quantity of urine diminished steadily to 137 oz. on May 3rd, but from that date there was no further diminution (except for a fortnight in September of the same year, to be alluded to later, when it fell below 100 oz.) until the month of December. Between these dates the highest quantity passed in one day was 260 oz., and the daily average about 170 oz. During this period there was progressive loss of weight and strength till the end of July, when the weight had fallen to 27 lbs. After that date there was a slight improvement in both respects.

In November of the same year measles broke out in the house, and on December 3rd H. F. shewed symptoms of the disease. On that day the urine diminished to 47 oz., and the two following days it further diminished to 15 and 11. The

rash appeared on December 6th, when 8 oz. of urine were passed, with sp. gr. 1026 and containing a quarter of a column of albumen. The urine continued to diminish till December 10th, when only $1\frac{1}{2}$ oz. were excreted; but the next day the amount was 15 oz., and it was free from albumen; and from that time it has been normal in quantity and quality. The body-weight rapidly increased ($31\frac{1}{2}$ lbs. on February 26th), and up to the present (January, 1892) H. F. has enjoyed uniformly good health; but it is only recently that she has ventured to face the stairs unaccompanied.

In addition to preparations of ergot all the drugs usually suggested were tried, including antipyrin, as recommended by Opitz (*American Journal*, Dec. 1889). The only one which seemed to have the slightest influence on the amount of the secretion was chlorodyne, a dose of which was administered for toothache on Sep. 10th; this was followed by a marked reduction in the quantity of urine (118 oz. to 88), but the next day the quantity rose again to 135 oz. On resuming the drug in doses of $\mathfrak{m}$ iii. twice daily the urine again diminished, and for a fortnight the quantity was below 100 oz. per diem; afterwards the beneficial effect seemed less but the urine did not again increase to the figure it reached before the administration of chlorodyne.

Apart from the very definite history of cause and of cure there are two points of interest in this case: the first is the curious fact that almost all the urine excreted was passed at twice, once after the night sleep and once after the afternoon sleep which was never omitted. The following record of two days taken at random will illustrate this:—

August 26th, 4.15 a.m., 3 oz.; 8.30 a.m., 82 oz.; 5.15 p.m., 79 oz.; 11.10 p.m., 3 oz.

August 27th, 5.10 a.m., 7 oz.; 8.5 a.m., 75 oz.; 6.15 p.m., 56 oz.; 9.30 p.m., 4 oz.

The other point of interest is the enormous quantity of urine retained in the bladder of this child of 3 without any apparent detriment and with comparatively little discomfort; on two occasions the quantity voided at one time exceeded 100 oz., and 90 oz. was frequently reached.

CHARCOT'S DISEASE OF HIP JOINT.

BY GILBERT BARLING, F.R.C.S.
SURGEON TO THE GENERAL HOSPITAL.

Charcot's Disease of Hip Joint; synovitis of knee joint, probably the commencement of the same condition in this articulation.

A female, aged 27, was admitted to the General Hospital July 9th, 1891, with trouble in the above joints. At that time her condition was as follows:—The right lower extremity was everted and wasted, all movements but flexion being free; the limb was *two inches and a half* shorter than the opposite one. At the upper part of Scarpa's triangle and the lower part of the iliac fossa was an ill-defined fluctuating swelling free from pain and tenderness, and irreducible. Crossing the front of this, and attached by its base to the anterior superior spine of the ilium, was a mass of bone movable at its unattached extremity. Extension applied to the limb restored it nearly to the length of its fellow, and gave rise to coarse bony grating in the joint. The patient believed that the joint had *suddenly become deformed*, but could not assign a date when this happened. The left knee was enlarged and fluctuating, and there was some thickening of the margins of the femur and tibia.

The patient was married and had borne three children. There was no history or evidence of syphilis, except such as is suggested in the following notes. She had formerly been in the hospital under the care of Dr. Wade, and in August, 1890, when admitted for dropsy, she was tapped and a large quantity of fluid drawn off. This had never recurred. In October of that year she suddenly lost the use of her right leg, being then five months pregnant. The note of her condition then is as follows:—There was a swelling in front of the right great trochanter, and the left knee was also swollen, but neither of them was painful. There was slight anesthesia of both legs, and the sensory impulses were somewhat delayed. The movements of the right leg were slightly impaired. The patellar reflexes were absent, the plantar were slightly delayed, there

was no ankle clonus, the sight was rather dim, but the pupils reacted to light and accommodation. There was slight nystagmus. A little later it was noted that she could walk fairly but with a somewhat ataxic gait, and could not stand with her eyes shut. In February, 1891, she had a convulsive attack, the exact nature of which could not be determined. When in the surgical ward in July, 1891, the condition of her reflexes was much as described in the above note, and there is only to add that she complained of shooting pains in both legs, which had troubled her for more than a year.

Under the influence of rest in bed, the application of iodine, and of Scott's dressing to the knee, the bursal swelling in front of the hip joint diminished, and the fluid in the knee disappeared. During this time she had periodical attacks of pain in her wrists and ankles, which she described as "rheumatic." The patient was discharged with a raised boot for the shortened limb.

PERISCOPE.

CEREBRAL SURGERY.

BY GILBERT BARLING, F.R.C.S.

Aphasia.—The *American Journal of the Medical Sciences* for February, 1892, contains an admirable account of a case of aphasia due to intra-dural hæmorrhage without external signs of injury, under the care of L. Bremer, M.D., and N. B. Carson, M.D. The patient, a male aged 21, was trephined and made a good recovery. He received an injury by falling between some joists when intoxicated, but beyond headache on the left side, worse in the afternoon, and occasional vomiting, nothing ailed him. A week after the fall, whilst walking, he suddenly became unconscious and fell, and soon afterwards had difficulty in speaking. This increased and was worse at night, when the

temperature was elevated to about 101° and the pulse slowed to 54. At the end of a fortnight from the injury the patient's condition was as follows :— He looked rational and understood all that was said to him, but could answer questions about ordinary objects very imperfectly and was unable to repeat words spoken to him. There was slight facial paralysis on the right side, and the tongue deviated to the right side, and the movements of the right thumb and index were clumsy. Sensation was blunted over the whole of the right side. Writing words was almost impossible, but figures were more easily managed. Two days later these failures were more marked, the grip of the right hand was weaker than the left, and the *left* foot was dragged in walking. The pressure on the brain was evidently increasing rapidly as the power of the right leg failed soon after the above conditions were noted. The pulse varied from 56 to 43.

The diagnosis was extra-dural hæmorrhage compressing the foot of the second and third frontal convolutions and involving also the jaw and tongue centres on the left side. There was no mark of external injury, but the trephine was applied over the region above described, the button removed being $1\frac{1}{4}$ inch behind the ext. angular process and the same distance above the base line. On exposing the dura no clot was found, but that membrane presented a dark cloudy appearance and did not pulsate. The opening in the bone was enlarged, mostly backwards, and the dura was then incised, exposing fluid and clotted blood between the dura and the arachnoid. This collection extended nearly to the longitudinal sinus above, to the base of the cranium below, and about three inches transversely. After the blood was removed the dura was replaced over a horsehair drain but not sutured. Steady improvement followed, and the patient was discharged nineteen days after operation, and six months after the operation he was hard at work and perfectly well. The hæmorrhage is ascribed to rupture of an abnormal vein passing from the upper and lateral parts of the brain out of the pia to the longitudinal sinus. The rupture was ascribed to displacement of the brain by the jar of the patient's fall. Following

the description of the case is an excellent discussion of the condition calling for trephining in meningeal hæmorrhage and of the symptoms which differentiate between intra- and extra-dura bleeding.

Trephining for Middle Meningeal Hæmorrhage. — The *Edinburgh Medical Journal* for July, 1892, contains a very interesting case of successful trephining for middle meningeal hæmorrhage at the point of *contre coup*, by W. Stewart, M.D. The patient, a man aged 46, fell and struck his head against a wooden pile. He attempted to go on with his work, but was advised to go home, and twenty minutes after his fall, whilst talking to someone, he groaned, fell down, became unconscious, and was convulsed all over his body. He was speedily conveyed to hospital, and then had another convulsive seizure, which began with dilatation of the pupils and conjugate deviation of the eyeballs to the right. This was followed by spasms of the left side of the face, of the left arm, and then of the left side of the body and the left leg, followed, after an interval of at least twenty seconds, by convulsions of the whole of the right side of the body including the face. As the seizure passed off, the eyeballs deviated to the left side, and slight facial paralysis remained. A scalp wound an inch and a half long leading to unfractured bone was found an inch and a half above the base of the left mastoid process. Breathing was oppressed, pulse about 60, free bleeding from the right nostril. The patient had three convulsions, was unconscious and restless. The skull was trephined an inch and a half behind the external angular process and an inch above the zygoma on the *right* side. As soon as the trephine had pierced the skull a persistent flow of blood took place, estimated at from four to six ounces, but this ceased spontaneously. [No mention is made of bruising of scalp tissues or of fracture of the bone at the point of trephining.] The dura mater was not opened. From the time of the fall until the bone was pierced, less than an hour had elapsed. A piece of decalcified bullock's bone was inserted into the trephine opening, and the external wound

was drained. All went well until the twelfth day, when the temperature rose to 103·6, and remained high for a week. Nine weeks after the injury the trephine opening was closed by a disc of firm tissue, united to the edges of the opening so that no pulsation was felt. A slight degree of facial paralysis existed, but soon afterwards the patient resumed work.

It should be mentioned that twelve years ago the patient fell on to his head, and was unconscious and delirious for six weeks.

[It may be that some abnormal condition existed from this former injury which might explain the occurrence of the hæmorrhage. In the absence of fracture at the seat of the hæmorrhage, it is difficult to understand how extra-dural hæmorrhage from the middle meningeal artery could occur; *contre coup* does not seem a sufficient explanation.—G.B.]

Cerebral Tumour.—The *Liverpool Medico-Chirurgical Journal* for January, 1892, contains an interesting case of temporary relief of cerebral tumour by trephining. The patient, a male aged 32, under the care of W. T. Clegg, was found on August 1st, 1890, to be suffering from left exophthalmos, having a history of a similar condition four years before which underwent spontaneous recovery. In January, 1891, he had double optic neuritis, and later, temporary aphasia. At the end of March the patient had a fit, and on recovery was found to be suffering from aphasia and right hemiplegia, the last-mentioned clearing up in about six weeks. In May, as the eyeball was suppurating, it was excised and the orbit was scooped out, as it was found to be occupied by a spindle cell sarcoma, not connected with the periosteum, but reaching back to the sphenoidal fissure. Temporary relief followed; but at the end of June the patient suffered extreme pain in the left side of the head and repeated attacks of Jacksonian epilepsy, involving the right side of face, sometimes the arm, and occasionally the leg; and at this time he could only make hieroglyphics instead of writing intelligibly. Exploratory trephining was performed over the speech area on the left side on August 20th, and an area of two inches of bone removed. Profound shock then compelled the operator to

desist, and the wound had to be hurriedly closed. Healing took place rapidly, and the patient was greatly improved in writing and in speech, and his fits disappeared. Four months afterwards unfortunately the pain and Jacksonian epilepsy returned. Mr. Clegg refers to the uselessness of the tourniquet in controlling the hæmorrhage from the scalp flap, and to the value of Horsley's wax in stopping up the diploic and some other vessels. He also dwells upon the importance of recognising the veins passing from the pia mater through the arachnoid, especially in the neighbourhood of the superior longitudinal sinus. Traction on these veins empties them, and they are scarcely seen. When snipped through, however, they bleed into and under the pia, causing a good deal of hæmorrhage, and wasting much time in securing them.

Cerebral Abscess.—In the same journal is an account by R. W. Murray of the successful treatment of a cerebral abscess in a child 5 years of age. The child was admitted with loss of power in the left upper extremity, and with epileptic seizures affecting this arm and the left side of the face. A fortnight before, the child was struck on the right side of the head with a poker, a wound resulting, but she appeared to be in her usual good health until fourteen days after the accident. There was never loss of consciousness, nor vomiting, nor complaint of pain. Examination of the head shewed a sloughing scalp wound in the region corresponding to the junction of the upper with the middle third of the Rolandic fissure on the right side, at the bottom of which a probe felt bare bone and entered a small aperture into the cranial cavity. The trephine was applied here, and when the bone was removed, the dura was seen to be torn at its centre. The brain substance beneath was in a soft sloughing condition, and did not pulsate. A probe passed into the brain downwards, inwards, and slightly backwards, at the depth of two inches entered an abscess cavity, liberating about a drachm of pus, with which a tiny slough of brain tissue escaped. The cavity was washed out with perchloride of mercury, 1 in 5,000, and drained. An excellent recovery

followed, and at the end of a fortnight the movements of the right arm were as good as ever. No examination was made of the eyes until two weeks after the operation, when marked double optic neuritis was found, more intense on the right side. This gradually cleared up. A month later the outline of the right disc was still distinctly blurred, but at the time of report both discs had cleared up.

Brain Surgery.—Dr. William Hammond, of Washington, reports, in the *Philadelphia Medical News*, seven cases of brain surgery. He incidentally alludes to the fact that he has trephined thirty-one times for epilepsy, with only one death, apart from the cases recorded here.

Case 1. A male aged 41, epileptic, and the subject of double consciousness, received an injury on the head when he was eight years old, and being only temporarily relieved by bromides, resorted to operation. A depression an inch and a quarter long existed at the posterior superior angle of the right parietal bone and over the fissure of Rolando and the adjacent parts of the ascending convolutions. At this place there was almost constant pain, but there was no paralysis of motion or loss of sensation. On removing a disc of bone here, the dura mater was found healthy, and in the absence of localised symptoms nothing further was done. The patient recovered, and, though better for three months, eventually relapsed; and the operator regrets that he did not pare off the surface of the convolutions.

Case 2. A male, aged 35, received during the civil war a blow on the head with a sabre, which was followed by a large exfoliation of bone. Seven years ago he began to lose power in the right arm and leg and to feel pain in the head. Later, his voice acquired a higher pitch than natural, there was loss of articulating power, and his emotional faculties became weak. When admitted for treatment the right limbs were completely paralysed, the tendon reflex of both knees, but especially of the right, was much exaggerated, and ankle clonus was well marked on both sides. The condition diagnosed was descending degeneration of the left antero-lateral column of the cord, possibly also a similar incipient condition on the right side. It

was believed that the membranes had been the seat of inflammation, and that the cortex of the ascending frontal and parietal convolutions and the posterior part of the second frontal convolution had become involved. The trephine was applied at the centre of the depression, so as to embrace in its area the convolutions above referred to. Spicules of bone were found adherent to the button removed by the trephine, and other depressed fragments were found attached to bone removed by the rongeur. A mass of false membrane was then dissected off, causing troublesome bleeding, but this left a healthy membrane below. The wound was closed, with drainage, and a perfect recovery followed. A month later he was in every respect much improved; he could walk with a stick, raise his arm to his head, speak more plainly, and his exaggerated reflexes were lessened. He then refused to stay under treatment, and later relapsed.

Case 3 is of great interest. A child, aged three, the subject of epilepsy, from which she had suffered about a year, could not acquire further power of articulation, and lost the use of the words she had already learnt. She appeared quick and intelligent, and had epileptic convulsions about once a month. The condition was attributed to a fall, but there was no mark of injury to the head. The trephine was applied an inch in front of the fissure of Rolando, and a quarter of an inch above its junction with the fissure of Sylvius, so as to be immediately over the posterior part of the third frontal convolution. No injury of the bone was found, but the portion removed was a quarter inch thicker than was normal, so that it "doubtless exercised considerable pressure on the brain at that point." The dura mater was apparently healthy. Excellent healing took place, and the report of the child's condition two years later is most satisfactory. Since the time of the operation she has steadily improved in the faculty of speech, and now speaks as well as most children of her own age, and there has been no return of the epileptic seizures.

Case 4. A girl, aged 19, was the subject of left hemiplegia, epileptic convulsions, and mental deterioration, with occasional

maniacal excitement. The paralytic condition appears to have originated after an acute illness in early infancy, and the epilepsy at five years of age. For five years she had exhibited marked symptoms of mental derangement. The diagnosis made was growth involving the left parietal and part of the frontal lobe, especially the ascending convolutions. The centre of the trephine was applied over the fissure of Rolando half an inch inferior to the sagittal suture, so as to embrace the superior part of the two ascending convolutions. All the membranes were found adherent, and beneath them a bluish membrane shewed like a vein, but when it was punctured a stream of serous fluid spurted out. The cavity occupied by this was drained by a tube which passed in three inches, the wound was closed around the tube, but the button was not replaced. Soon after being put to bed the patient had a severe chill, became noisy and excited, her temperature rose to 104° , and she died of coma on the sixth day after the operation. At the autopsy the most important things found were thickening and adhesions of the membranes, and a cyst cavity occupying nearly the whole right parietal region, the convolutions of which had disappeared, as had the ascending frontal in part. The following parts had also disappeared: portion of the occipital and temporal lobes, the island of Reil, parts of the caudate and lenticular nuclei, and the internal capsule. The cyst did not open into the lateral ventricle. A second small cyst was found in the inferior convolutions. Nothing was discovered to explain the high temperature, etc., which followed the operation.

Case 5. A male, 38, the subject of epilepsy and partial paralysis of the left extremities, twenty years before treatment fell and sustained a fracture of the posterior superior angle of the right parietal bone. This was followed by separation of bony fragments, leaving an irregular depression in the skull. Removal of a button of bone at the site of the depression was followed by a gush of fluid from a cyst which replaced destroyed brain tissue. The cyst wall externally consisted of scalp, skull, and membranes, and, from the large amount of fluid lost, it was

judged that the cyst communicated with the latent ventricle. Owing to faintness after the operation, ascribed to this loss of fluid, the drainage tube was removed. Some days later, the fluid having reaccumulated, it was drawn off to relieve pressure symptoms. The patient grew weaker, became delirious, and eventually died, fifty days after the operation, of exhaustion. There was no evidence of any inflammatory mischief in the brain, nor was there any convulsion after the operation, but the paralytic condition was not improved.

Case 6. A male, aged 28, suffered from left hemiplegia, epilepsy, and imbecility. He was treated with large doses of iodide of potassium, as the disease was believed to be syphilitic, and he entirely recovered. Three months later he relapsed, and, though again treated with the iodide, did not improve, and at the time of operation his symptoms were those above mentioned. A gumma of the cortex of the ascending frontal and parietal convolutions was diagnosed, and these were exposed over the arm and leg centres. When the dura was opened, the membranes were seen to be opalescent, and a small quantity of fluid escaped. Nothing else being seen, the wound was closed, and the patient three months later was free from all symptoms, though the possibility of his relapsing was recognised.

Case 7. Male, aged 28, suffered from a constant, dull, heavy ache in the occipital region with occasional attacks of vertigo, so that he was completely disabled for business. The kidneys were healthy, there was no disturbance of motion or sensation, speech was unaffected, and the intellect was unimpaired. General treatment being quite unavailing, he was trephined over the right supra-orbital ridge, where there was a scar and a depression produced by the blow of a stone seven years previously. When the button of bone was raised, a large spicule of bone was found attached to it, and there was a mass of highly vascular membranous tissue, most of which was scraped with the handle of the scalpel. The wound healed very readily, and in a fortnight the patient returned home relieved, but by no means cured. A later report says that the improvement had continued, and the patient felt able to resume business.

REPORTS OF SOCIETIES.

BRITISH MEDICAL ASSOCIATION.
BIRMINGHAM AND MIDLAND COUNTIES BRANCH.
Session 1891-92.

PATHOLOGICAL AND CLINICAL SECTION.

The Third Meeting was held in the Library at the Medical Institute, on Friday, January 29th, at 8 p.m., Mr. BENNETT MAY, F.R.C.S., in the Chair.

Excised portion of Coccyx.—Mr. Morrison shewed this specimen, which he removed in October last from a girl aged 13 who had suffered great misery from coccygodynia. The trouble was traced to an injury sustained in the previous May, when the patient had been forcibly pushed backwards by a schoolfellow against a projecting angle of brickwork in the school playground, considerable pressure being thus brought to bear upon the coccyx. Severe and persistent pain in the coccygeal region followed. The pain was increased by walking, or by sitting down on a soft cushion, whilst the act of defecation was agonising. Examination *per anum* shewed the tip of the coccyx displaced forwards; and on taking the bone between a finger internally and the thumb externally, it could be moved with abnormal freedom in the antero-posterior direction, indicating rupture of the posterior ligament. The manipulation gave rise to acute pain. Almost continuous rest for four months failing to cure, Mr. Morrison excised the displaced bone, dissecting it out through a straight dorsal incision; the removal was facilitated by the finger of an assistant pressing the apex from within the anus. The wound was drained and sutured, and it healed soundly in a few days without any complication. Relief was immediate and complete, the patient being restored from a state of invalidism to one of active health.

Mr. Morrison expressed the opinion that diastasis of the coccyx due to rupture of ligament was not a very uncommon lesion, and that it was apt to be overlooked unless investigated with a finger in the rectum. He was not in favour of treatment by subcutaneous wound with a tenotome as advocated by Simpson, the result being unreliable. Rest being fairly tried and proving unsuccessful, excision was the right treatment, the operation being a simple one, and, if carefully performed, involving no complication.

Ulcer of the Tongue.—Mr. Barling shewed sections from an ulcer of the tongue the nature of which was doubtful, but it was probably a very early stage of epithelioma. It was taken from a man, aged 45, who suffered from epileptic fits and had for years been accustomed to bite his tongue in his fits. When first seen, in September, 1891, the ulcer, half an inch long and somewhat less wide, was situate on the left lateral border of the tongue, and had a rather hard margin. All the teeth which could possibly injure the sore were removed, and the use of caustics was prohibited. A month later, there being no improvement, a bit of the margin was snipped off for microscopic examination, but the sections shewed no evidence of epithelial ingrowth. Later, although there was no history or evidence of syphilis, the patient was put on iodide of potassium, but despite considerable doses, the sore slowly extended, and the glands just behind the sterno-mastoid became slightly full. On December 20th, therefore, excision of the lateral half of the tongue was performed with scissors, and the patient made a good recovery. At the time of the operation the ulcer was about an inch long by two-thirds of an inch wide, the depth being inconsiderable. The upper margin was a good deal indurated, but the lower scarcely at all. The floor of the sore shewed some pale feeble granulations, such as are seen on a tubercular ulcer in these parts. Sections made right through the base of the ulcer, and the thickness of the half of the tongue, shewed at the indurated margin much thickening of the epithelium, but very little downgrowth of it into the deeper

tissues; cell nests were completely absent. There was much small cell infiltration extending nearly to the median raphe, but nothing was seen such as is characteristic of tubercle in the tongue. If there is such a condition as a "pre-cancerous" one, it appears likely that this is an example of it.

Fibro-myxomatous Tumour. — Mr. Jordan Lloyd shewed a large fibro-myxomatous tumour (naso-pharyngeal polypus) successfully removed from a seventeen-year-old lad. Epistaxis had begun six weeks before; a week later nasal stuffiness was complained of; a few weeks later a red fleshy growth began to project from left nostril. Nasal septum pushed to right; nose expanded; soft palate depressed; tumour could easily be felt behind it, completely blocking the naso-pharynx. The upper lip was divided on the left of the middle line, and the left nostril cut through up to the nasal bone. The soft parts were dissected outwards from the bone, and the opening into the nasal cavity enlarged. The tumour was attached to the left side of the roof of the pharynx, and was rapidly elevated off the bone with a stout raspatory worked through the nostril and directed by a finger behind the soft palate. Bleeding was free for a few seconds, but was easily controlled by pressure. The edges of the wound were carefully united with wire sutures, and the boy made a perfect recovery. Microscopically the growth has the character of a myxo-fibroma.

Mr. Lloyd also shewed a tubercular genito-urinary system removed from a man, aged 43 years, who died from uræmia. The right kidney was a sac of putty-like material, and weighed three and a half ounces. The left was large, weighing eleven ounces, its substance thickly studded with small yellow nodules; pelvis and ureter dilated and ulcerating. The bladder was normal in size, its muscle substance thin, and its lining studded with tubercle. The prostate was a mere shell, its whole interior having been destroyed by ulceration, which extended also some distance along the membranous urethra. The left seminal vesicle was healthy but small; the right was tubercular. There was no sign of tubercular disease in any other part of the body.

His symptoms began, fourteen years before his death, with paroxysmal hæmaturia, followed in a few months by frequent micturition; and a diagnosis of tumour of the bladder was at this time made. No operation was at any time performed.

Periosteal Sarcoma.—Mr. Heaton shewed a specimen of periosteal sarcoma growing from the lower end of the femur of a young man of 22. The tumour had been noticed for five months, and was rapidly growing when removed by amputation through the trochanters. The section of the mass shewed it to be a large ossifying periosteal sarcoma, which had already surrounded and involved the popliteal vessels and nerves. Microscopically it was a round-celled ossifying sarcoma. The prognosis was in his opinion a very grave one, such growths shewing a great local and general malignancy.

Morbus Cordis.—Communication between Pulmonary Artery and Aorta.—Mr. St. Johnston shewed the above specimen for Dr. Carter. G. C., æt. 30, was admitted into the Queen's Hospital, Birmingham, complaining of pain in the chest, cough, and shortness of breath. He gave a history of good health up to the commencement of the present illness six months ago. No history of rheumatic fever, syphilis, nor of heavy work. About six months ago he gradually became short of breath and suffered from slight cough; and about two months ago had paroxysmal attacks of pain, lasting for a few minutes; these had occurred almost daily since.

State on Admission.—Well-developed man, voice husky, face greatly cyanosed. Pulse regular, jerky, and full. Apex beat in sixth interspace one inch outside nipple. Area of cardiac dullness greatly increased. Heart sounds somewhat indistinct; a double aortic murmur, soft in character, audible at base, and especially to the *left* of the sternum. Urine contained a cloud of albumen. Legs oedematous. Liver large and tender.

This patient died suddenly while straining at stool, being slightly propped up in bed at the time, sixteen days after admission.

Post mortem.—The heart was found much enlarged, dilated,

and hypertrophied; both the aortic and mitral valves were diseased. A communication, the size of a pea, was found between the pulmonary artery and aorta; and opposite this, in the inner coat of the pulmonary artery, a patch of endarteritis. On the inner surface of the aorta several rounded patches of endarteritis (syphilitic ?) were found in the neighbourhood of the perforation. The edges of the communication were smooth, and it had evidently existed for some time previous to death.

Infantile Encysted Hernia.—Mr. F. Marsh shewed this specimen, removed by him at an operation for herniotomy on a boy *æt.* 2. Hitherto he had been sceptical as to the existence of this variety of hernia, but he thought the arrangement of the sacs in this instance would admit of no other explanation.

Dr. Simon read a note on the use of pilocarpin, which has already appeared in this journal.

Dr. Ratcliffe shewed a specimen of pearl grinders' phthisis.

MIDLAND MEDICAL SOCIETY.

Wednesday, January 27th, 1892.

Mr. BENNETT MAY, F.R.C.S., President, in the chair.

1. *A Fœtus.*—Dr. Purslow shewed a fœtus with the following malformations: (*a*) A large spina bifida in the lower dorsal region, in which were cartilaginous masses, probably displaced portions of vertebræ; (*b*) imperforate anus; (*c*) double talipes varus, well marked; (*d*) extroversion of bladder. The fœtus, which had arrived at maturity, was brought to the hospital by a midwife, and all that was known of the history was that the mother was single and a primipara.

2. *An Epitheliomatous Growth removed from Cervix Uteri.*—The patient, *æt.* 73, was admitted to the hospital with the following history. Four years previously began to lose blood; after twelve months had a tumour removed at another hospital, which was said to be a "myoma." Hæmorrhage ceased for about a year, then recurred. On admission, there was a large

sloughy-looking mass protruding from vulva. On careful examination, there was found to be prolapse of the third degree with a mass the size of a goose egg growing from cervix. This was removed by the ecraseur, and subsequent bleeding arrested by cautery. Patient recovered easily.

Uterine Myoma.—Mr. Christopher Martin shewed a large uterine myoma, weighing $14\frac{1}{2}$ lbs., removed by Mr. Lawson Tait. The patient was 52 years of age, and had noticed the tumour for about five years. Her chief symptoms were (1) profuse and painful menstruation, (2) very difficult and painful micturition, (3) loss of strength, (4) a great sense of oppression in the abdomen, (5) the steady and rapid increase of an abdominal swelling. Thirteen months previously a surgeon in a neighbouring town opened the abdomen, but failed to remove the tumour. Mr. Tait found a myoma blocking the pelvis, pressing on both bladder and rectum, filling the abdominal cavity, and reaching up under the liver. The incision made was very long, reaching from the pubes to an inch below the ensiform cartilage. The surface of the growth was covered with numerous huge tortuous veins. It was terribly adherent, and had to be removed by a process of enucleation from all the surrounding parts. There was no pedicle, but there was left a large hard cavity out of which the tumour had been shelled. Hæmorrhage was controlled with numerous ligatures and elastic compression. The patient rallied well from the shock of so grave an operation. She went home on the twenty-fourth day, the wound having healed by first intention.

Double Pyosalpinx.—Mr. Martin also shewed a specimen of double pyosalpinx, probably tubercular in origin, removed from a patient aged 20. For three years she had had painful and exceedingly profuse menstruation, with irregular attacks of pelvic peritonitis. About seven weeks previous to operation a severe flooding occurred. This was repeated from time to time until the patient became perfectly blanched. On examination, the uterus was found to be fixed, and two tender cystic swellings were felt behind and at either side of it. On opening the

abdomen, both Fallopian tubes were found to be greatly enlarged, occluded, adherent, and full of a semi-gelatinous purulent material. The uterine appendages were removed and the abdomen washed out. The patient made an excellent recovery.

Specimen.—Mr. Bennett May shewed a specimen of acute traumatic sarcoma of the femur treated by amputation.

Paper.—Dr. G. H. Melson read a paper on "Post-diphtheritic Paralysis: its diagnosis and severity at times out of proportion to the primary throat condition."

Wednesday, February 10th, 1892.

BENNETT MAY, F.R.C.S., President, in the Chair.

Mr. J. W. Taylor showed a large tumour removed from the labium, and also a number of gall stones successfully removed by cholecystotomy.

Idiopathic Muscular Atrophy.—Dr. Suckling shewed a boy, aged 9 years, who presented symptoms intermediate between those of idiopathic muscular atrophy and pseudo-hypertrophic paralysis. The disease had come on gradually for five years following a scald on one leg. The muscles of the legs and soles of the feet were much atrophied, and the feet were in the position of talipes equino-varus. There was no power of dorsal flexion of the feet, and no power of movement in any of the toes. The muscles of the hands were also much wasted, the thenar and hypo-thenar eminences being destroyed, and the hands "clawed." There were no sensory or trophic changes, but electrical contractility to both currents was abolished in the muscles of the calf and front and outer side of the leg on both sides. The knee jerk was abolished on both sides. Fibrillation was not present and had never been observed. The face was unaffected. The calf muscles were quite atrophied, and had never enlarged. There was distinct enlargement of the quadriceps extensor muscles of the thighs and of the gluteal

muscles. He walked on his toes and outer side of feet, feet apart, and gait waddling. There was no lordosis. The characteristic mode of rising observed in pseudo-hypertrophic paralysis was not present. The latissimus dorsi and pectoralis major muscles were not atrophied. The infraspinati muscles were not enlarged, but the deltoids were. There was no history of any other case in the family.

Cicatricial Stricture of the Œsophagus treated by Forcible Dilatation.—Mr. F. Marsh exhibited a boy, æt. 6, whom he had admitted into the Queen's Hospital, September 5th, 1891, in an extremely emaciated condition and unable then to swallow anything. Two months previously he had swallowed some "soap lees." The day after admission a No. 4 French catheter was passed, and in a few days a No. 8, but a week later it was impossible to pass one of any size. The stricture commenced about the level of the circoid, and involved more or less the whole extent of the œsophagus. An attempt was now made, under anæsthesia, to dilate the strictures with McEwen's dilator, but only an inch or two could be so treated, it being impossible to pass the guide further. At intervals during the next two months similar attempts were made, but only with partial success, a point ten inches and a half from the teeth proving impassable on two or three occasions. Each time progress was made the tissues could be felt to tear; there was always hæmorrhage, and the instruments brought up some tenacious mucus and pus. Between the operations the distance dilated was kept patent by the occasional passage of a bougie, and throughout the boy was chiefly fed by nutrient enemata. On November 27th, in making a last attempt, the guide fortunately was successfully passed into the stomach, and a series of dilating buttons used, considerable force being necessary to get the first one through. A full-size bougie (for the boy) was then easily passed. For the next six weeks a bougie was passed daily, and from then to the present time two or three times weekly. There is a slight tendency to recontraction, necessitating the continuance of this treatment for at least some months. A No. 15

bougie can however be passed without difficulty. The boy is well nourished and can swallow any kind of food. The result of the case cannot but be regarded as extremely satisfactory. The treatment, it is true, involved a large amount of patience and time, but the only alternative of gastrostomy was almost precluded by the fact that the parents were only able to provide the bare necessities of life, and the boy must inevitably have soon succumbed from want of both proper food and feeding.

Papilloma of the Bladder.—Mr. Barling shewed a papilloma of the bladder removed by the supra-pubic operation from a male aged 48. The history was one of occasional hæmaturia during the past year, without increased frequency of micturition, cystitis, or pain, except that the last was sometimes complained of when clot was passed. The tumour was diagnosed as a papilloma with the cystoscope, which shewed that it was located near the right urethral orifice. The growth was attached by a pedicle a third of an inch long, which was snipped through with scissors. A good recovery followed.

Uric Acid Stone discovered by the Cystoscope.—Mr. Barling also shewed a small uric acid stone, removed by the supra-pubic operation, from a man aged 55. The characteristic symptoms of vesical stone had existed for a few months, but the patient had twice been sounded *with a negative result*. An anæsthetic was administered for further examination, and on introducing the cystoscope the stone was at once detected lying behind a distinct projection of the middle portion of the prostate. When the position of the stone was known it was most difficult to detect it with the sound. At the operation the enlargement of the prostate was verified. The patient made a good recovery.

Urinary Tubercular Disease of Organs.—Mr. Jordan Lloyd shewed the entire urinary apparatus removed from a child three weeks old. The child was well developed and at full term. There was a valve-like stricture at the junction of the prostatic membranous urethra which had obstructed the easy passage of urine and had given rise to an exactly similar series of con-

ditions behind as occurs in urethral stricture in the adult—viz., enormous hypertrophy of the bladder muscle, dilatation of the ureters and the kidney pelves, and so-called “surgical kidney.” The specimen establishes beyond dispute the fact that urine is passed per urethram during intra-uterine life. A committee was appointed to draw up a full report on the specimen.

Epithelioma of Penis.—Mr. Haslam shewed a patient, aged 44, whose penis he had completely removed last September for epithelioma involving the prepuce and glans. From the extent of the growth it was necessary to split the scrotum, dissect off the urethra from the cavernous bodies and bring it out in the perinæum through a separate opening; the penis, with the whole of the cavernous bodies, was then removed. Hæmorrhage at the time of operation was less extensive than was anticipated, but some recurrent hæmorrhage in the evening reduced the patient (already very feeble) to a condition of extreme danger: this however was promptly met by Mr. Holden, the Resident Surgical Officer, who injected ten ounces of a saline solution into his veins with an immediate good effect. In spite of the urethra having been split and attached to the margins of the incision made for it, there has been some tendency to cicatricial contraction which has to be overcome from time to time by a graduated bougie. In other respects the patient has done well and has gained flesh since the operation.

Paper.—Mr. Jordan Lloyd read a paper on Gonorrhœa.

REVIEWS.

TEXT-BOOK OF THE ERUPTIVE AND CONTINUED FEVERS.*

THE TREATMENT OF TYPHOID FEVER.†

DR. MOORE'S book is a very careful and conscientious piece of work, which contains a very excellent account of all that modern observation and research has added to the already well-worn theme of the history and pathology of the eruptive and continued fevers. Unfortunately Dublin has presented too ample a field for their study, and out of London there is perhaps no city in these islands where it would have been possible for a physician to acquire so much personal knowledge of these diseases. But the main fault of the book is that Dr. Moore's modesty has led him to tell us too little of what he himself has thought and observed, and almost too much of the opinions of other writers. We hold that an author is bound to record all observations of matters of fact observed by others, but that in his own book he should give his own opinions and only so much of the opinions of others as may be due to their great authority or may be needed in order to bring into relief or perhaps to support his own views.

The volume begins with a chapter on the intimate nature of fever based chiefly on the writings of MacLagan and Macalister, and this is followed by two chapters explanatory of modern views of the relations of micro-organisms to disease, and two chapters on the general principles of treatment of fevers. The second part deals with the exanthemata: smallpox, chicken pox, measles, scarlatina, variola and erysipelas. In passing he deals

* Text-book of the Eruptive and Continued Fevers. By John William Moore, B.A., M.D., M.Ch., Univ. Dubl. Dublin: Fannin & Company. 1892.

† The Treatment of Typhoid Fever, and Reports of fifty-five consecutive cases with only one death. By James Barr, M.D.; with an Introduction by W. T. Gairdner, M.D. London: H. K. Lewis. 1892.

with vaccination and dismisses modern heresies on this subject very summarily. The third part is devoted to the continued fevers: typhus, relapsing and enteric fevers. It is not possible to tell whether Dr. Moore is or is not in favour of the systematic employment of cold baths in the last disease, as he contents himself with relating the methods advocated without committing himself to an opinion. The same criticism may be made respecting other methods of treatment. In fact, as we have said, we should like the book much better if Dr. Moore had ventured to be a little less modest.

Dr. Barr's book is not at all open to this objection. It is a full account of the results of his method of treating enteric fever by continuous immersion in a tank, as already described by him in the *Lancet* (1890, vol i., p. 690). The work itself is preceded by an introduction by Professor Gairdner, who speaks in highly appreciative terms of Dr. Barr, but has not had any experience of his method; all he can say is that it is a more logical, complete, and less objectionable plan than that of Liebermeister.

Dr. Barr commences his own part of the book with a historical account of the treatment of fever since the days of Sydenham. This is followed by a brief chapter on diagnosis, after which we get the kernel of the book in his exposition of his own method which, we may state briefly for the benefit of those who have not read his original paper, consists in keeping the patient immersed continuously in a tank of water at a temperature varying, according to the heat of the body, from 90° to 98° Fahr. The patient is supported by a strip of stout bed-ticken and wrapped in a blanket; his head rests on an air pillow. The tank is covered with a half-lid which prevents the weight of the bed-clothes resting on the patient, with a waterproof sheet and bed-clothing to keep in the heat of the water. For details we must refer to the book, but we may state that he now endeavours to prevent as far as possible the patient passing his fæces into the tank water by having him swung in an adaptation of Duncanson's bed-lift; and he pays considerable attention to disinfecting the

discharges from the tank. He has treated twenty-two cases in the tank, eleven by wet-packs, etc., and twenty-two by symptomatic treatment only. The cases treated in the tank were generally the most severe. The mortality in the whole series is only one, this case having been treated in the tank.

It is somewhat difficult to judge of the value of the tank treatment from these cases, for it is apparent that all the methods have been exceedingly successful. The causes of death which in our experience are mainly to be dreaded are hæmorrhage and perforation; but these accidents occurred in no case, while a very potent cause of the mortality of cases treated in hospital is that they are so frequently admitted late in the course of the disease, after having been without treatment, or at least without appropriate treatment, up to admission. In our experience the greater part of the mortality is due to this cause, and we do not believe that any system of treatment could prevent occasional deaths among such neglected patients. It therefore makes it necessary to ask that statistics should be large enough to eliminate any fallacy due to a run of luck, such as we are all familiar with, before we can form any opinion of the true value of the bath.

THE NURSES' DICTIONARY.*

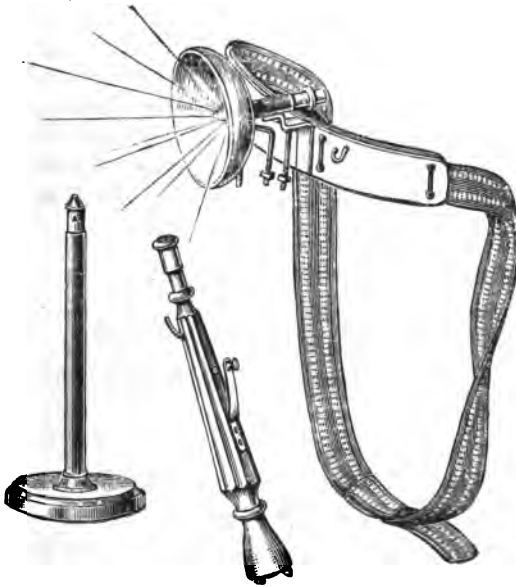
THIS is a very useful little book for reference purposes, and some such should be at the disposal of every nurse, more especially in the early days of training. It comprises not only what its name implies, but a description of the common abbreviations used, of many instruments, drugs, etc.

New Inventions, Drugs, etc.

IMPROVEMENTS IN ELECTRO-MEDICAL APPARATUS.—Messrs. Salt and Son, of Birmingham, have designed a novel and handy electrical surgical lamp, for use either as a forehead or as a hand illuminator, or for microscopic work. The illuminator consists

* The Nurses' Dictionary of Medical Terms and Nursing Treatment. By Honnor Morten, London: The Hospital, 140, Strand.

of an ordinary electrical "glow lamp" set to slide in the central radius of a hemispherical reflector of accurate construction, about $2\frac{5}{8}$ inches in diameter, the lamp being of small size to present as near an approximation to a mathematical point as practicable. This arrangement throws forward a field of light of nearly parallel beams when the lamp is telescoped to its proper focus. The whole apparatus is very light, and by a simple arrangement of connections fits into a convenient handle (with a current breaker) into the socket of a headband, or into a stand for microscopic work, the whole being packed in a neat leather case. The illustration will supply the place of further description. The light given is steady and brilliant, and sufficient for



SALT & SON:

the purposes for which illumination is required. It is suitable by its projecting power for examining the throat, nostrils, or ear, and has the advantage over ordinary hand illuminators in that it can be held at some distance from the part under examination. It brightly illuminates a cylindrical vaginal speculum, and may be of use in abdominal operations. The instrument can be supplied either with or without a portable and inexpensive battery, and will, we think, prove a boon to many practitioners.

KEPLER ESSENCE OF MALT.—This is a new preparation introduced to the medical profession by Messrs. Burroughs, Wellcome and Co. Kepler Essence of Malt is virtually a saturated solution of diastase and the natural phosphates which exist in barley malt. It is therefore a valuable chemical food both for brain and bone substance, and is a powerful digestive of farinaceous foods. It does not possess the intense sweet flavour and mawkish taste so generally prevalent in malt preparations and which render them so repugnant. The Kepler Essence of Malt makes a most delicious drink when mixed with aerated waters, milk, or plain water. This product offers the medical profession a reliable means for prescribing diastase, which is really the most important constituent of Extract of Malt, in a convenient and concentrated form.

CAFFYN'S LIQUOR CARNIS AND MALTO-CARNIS.—At the suggestion of a great many Hospital Secretaries and other gentlemen the Liquor Carnis Company have commenced putting up Caffyn's Liquor Carnis and Malto-Carnis in larger sizes for Benevolent Institutions, which enables them to charge a much lower rate for supplies.

New Books, etc., Received.

Tuberculosis and its Successful Treatment, by ROBERT BILL, M.D., etc.
Glasgow : David Bryce and Son.

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THE
BIRMINGHAM MEDICAL REVIEW.

APRIL, 1892.

ORIGINAL COMMUNICATIONS.

~~FORTY-FOUR CONSECUTIVE CASES~~
Birmingham Medical Review.

BY

The annual subscription (6/-) for the current year is now due. Subscribers who have not yet remitted are requested to do so (together with any arrears unpaid), as soon as convenient, to the publishers,

HALL AND ENGLISH,

71, High Street,

April, 1892.

Birmingham.

BHAM.

r 44

have

have

into

my hands, both in hospital and in private practice, and the details of each appear in the following table.

Of the 44 patients one only was a female, and, curiously enough, it was the first "stone case" I had. The ages of the patients varied from 2 years 8 months to 72 years. Fifteen were under 10; 9 between 10 and 20; 7 between 20 and 30; 3 between 40 and 50; 6 between 50 and 60; 2 between 60 and 70; and 2 between 70 and 80. All the patients *under 30* years of age came from the hospital class, and of the others some were private and some hospital. The calculi were chiefly of the three common varieties, viz.:—Phosphates, 18; uric acid, 10; oxalate of lime, 7; 8 were of a mixed structure; and one was a pretty specimen of the crystalline pure triple phosphates. The phosphatic calculi mostly occurred in

No.	Date.	Sex.	Age.	Duration of Symptoms.	Operation.	Stay in Hospital.	Stone.	Weight.
1	Aug. 14, 1883	F.	A. B., 2 yrs. 8 months	3 months	Litholopaxy	25 days	Phosphates	55 grains.
2	Sept. 6, 1884	M.	H. H., 10 years	3 years	Lateral	55 "	Uric Acid coated c. Phosphates	205 "
3	Mar. 20, 1885	M.	W. W., 12 "	3 weeks	"	26 "	"	157 "
4	Sept. 26, 1885	M.	H. H., 8 "	3 weeks	"	43 "	Uric Acid	39 "
5	Jan. 12, 1886	M.	H. B., 57 "	12 months	"	62 "	Oxalate of Lime	184 "
6	June 4 "	M.	J. P., 24 "	2 years	"	39 "	"	696 "
7	July 13 "	M.	C. T., 23 "	12 months	Supra-pubic	40 "	Oxalate of Lime crusted c. Phosphates	1080 "
8	Oct. 15 "	M.	I. D., 59 "	10 "	Litholopaxy	31 "	Oxalate of Lime c. Phos. Nucleus	285 "
9	Nov. 15, 1887	M.	B. C., 11 "	3 years	Lateral	15 "	Uric Acid	30 "
10	Feb. 23 "	M.	G. H., 4 "	6 months	Supra-pubic	49 "	Phosphates	130, 137 grs.
11	July 26 "	M.	W. B. H., 4 "	6 "	"	24 "	" (two)	61 "
12	Aug. 19 "	M.	H. B. H., 4 "	5 years	"	21 "	Uric Acid and Phosphates	142, 140 grs.
13	Sept. 2 "	M.	I. T., 22 "	11 months	"	32 "	Uric Acid	910 "
14	Sept. 10 "	M.	S. W., 10 "	12 "	"	32 "	Triple Phosphates	330 "
15	Dec. 2 "	M.	F. S., 4 "	12 "	Lateral	25 "	Oxalate of Lime	419 "
16	Feb. 10, 1888	M.	T. B., 24 "	3 years	"	22 "	Phosphates	61 "
17	May 18 "	M.	A. W., 15 "	12 months	Supra-pubic	38 "	Uric Acid and Phosphates	412 "
18	June 25 "	M.	R. H., 14 "	Few years	Lateral	47 "	Phosphates	296 "
19	July 10 "	M.	F. W., 3 "	2 years	"	37 "	Oxalate of Lime	900 "
20	July 10 "	M.	J. M., 22 "	Few days	"	49 "	Phosphates	346 "
21	July 10 "	M.	E. I., 70 "	6 months	Litholopaxy	14 "	Stone lost	80 "
22	Nov. 6 "	M.	J. M., 23 "	Several years	Supra-pubic	32 "	Phosphates	720 "
23	April 27, 1889	M.	J. L., 43 "	3 months	Lateral	79 "	Uric Acid	128 "
24	April 28 "	M.	R. H. N., 4 "	Several years	"	18 "	Oxalate c. Phosphatic crust	245 "
25	July 19 "	M.	A. R. H. N., 4 "	5 months	"	30 "	Uric Acid	66 "
26	Sept. 13 "	M.	W. H., 3 "	3 months	"	30 "	Phosphates	48 "
27	Oct. 4 "	M.	F. S., 4 "	3 months	Lateral	57 "	No Stone	85 "
28	Jan. 7, 1890	M.	E. H., 3 1/2 "	6 months	Supra-pubic	17 "	Phosphates	66 "
29	April 28 "	M.	H. H., 4 "	12 "	"	32 "	Oxalates c. Phosphates	264 "
30	May 14 "	M.	A. A., 21 "	12 "	Lateral	74 "	Uric Acid and Triple Phosphates	95 "
31	Sept. 13 "	M.	F. C., 6 1/2 "	1 week	Supra-pubic	19 "	Uric Acid	5 1/2 "
32	Oct. 3 "	M.	R. J., 6 "	1 week	"	22 "	Uric and Phosphates	48 "
33	Nov. 8 "	M.	E. D., 10 "	8 years	Median	36 "	Phosphates	160 "
34	Dec. 8 "	M.	J. B., 63 "	8 years	Supra-pubic	16 "	Uric Acid	380 "
35	Dec. 8 "	M.	J. L., 8 "	1 week	"	10 "	Uric and Phosphates	80 "
36	May 15, 1891	M.	S. J., 45 "	12 months	Median	9 "	Phosphates	5 "
37	June 27 "	M.	D. B., 42 "	3 years	Litholopaxy	43 "	Uric Acid	77 "
38	July 18 "	M.	J. W., 23 "	3 years	"	43 "	Phosphates	165 "
39	Sept. 6 "	M.	"	"	Supra-pubic	"	"	200 "
40	Oct. 9 "	M.	"	"	"	"	"	"
41	Oct. 18 "	M.	"	"	"	"	"	"
42	Nov. 14 "	M.	"	"	"	"	"	"
43	Nov. 14 "	M.	"	"	"	"	"	"
44	Nov. 11 "	M.	"	"	"	"	"	"

children, the oxalate of lime in the young adult, and the uric acid in older adults. The proportion of oxalate of lime to other stones is here very high, but it is a well-known fact in this district that the oxalate is perhaps the most common variety of stone met with in the young adult, and what is equally strange is that such stones attain considerable size without causing very much distress. We are generally taught that oxalate calculi, because of their roughness, etc., give rise to more painful symptoms than do the other varieties, but this does not appear to be the rule here. The seven oxalate calculi averaged $571\frac{1}{2}$ grs. each, while the phosphatic stones averaged 175 grs., and the uric acid 188 grs.

Multiple stones were met with six times—none of them being oxalates—and the “twin” like character of double calculi is well seen in two of the specimens. The largest number met with was 11 (No. 43). One of the patients (No. 22) was cut on two occasions by myself, and one (No. 37) had been previously cut by another surgeon. Of the 44 operations, six were by crushing and 38 by cutting, a disproportion so striking as to demand more than passing notice when we remember that litholopaxy (or lithotrity at a single sitting) is the procedure *par excellence* for the mechanical treatment of all bladder stones. The small number of my cases suitable for this operation is easily accounted for when we find that 21 were in boys under 15, and when we remember how frequently the hard mulberry calculus occurs amongst young adults in Birmingham practice.

Litholopaxy was performed on six occasions, once in a female and five times in males. The heaviest stone weighed 80 grs., and the average was only $50\frac{1}{2}$. The oldest patient was 72 years (No. 23), and the youngest 3 years and 8 months (No. 41). The latter is interesting, as it is the only young male upon whom I have tried the crushing operation. The case was admitted into the Children's Hospital in October last. A calculus weighing a few grams only was easily seized and broken with a small lithotrite, the fragments washed out with a No. 5 Clover's irrigator, and the patient left hospital eight days later perfectly

well. The litholopaxy on the female occurred in 1883 (No. 1) in a child aged 2 years 8 months. She had urinary incontinence at the time of admission. The urethra was dilated to admit a small Bigelow's evacuator, and the incontinence has persisted ever since, whether as a result of the operation it is impossible to say.

An extraordinary case, shewing to what size the female urethra is capable of becoming dilated, occurred in the practice of my friend Dr. Higgs, of Dudley, to whose courtesy I am indebted for the privilege of making use of the notes. The specimen handed round was extracted from her own urethra by an old lady more than 80 years of age. She had suffered from stone for a long time, and had always declined surgical interference, but at one of his visits she presented her astonished doctor with this huge calculus, which weighs three and three-quarter ounces, measures seven and five-eighths inches in its longest circumference, and five and three-eighths in its shortest. After much suffering and extraordinary patience the old lady had at last rid herself of her enemy without having to submit herself to the "indignity" of surgical procedure. She died a few months later, and Dr. Higgs was allowed to examine the genitals. He found an enormously dilated urethra, through which the calculus must have been extruded, as every other structure was perfectly normal.

Another curious case of spontaneous discharge of large calculi came under my notice nine or ten years ago in the practice of my friend Mr. R. A. Newton. He had attended for a long time an old woman nearly 80 years of age with urinary incontinence and leucorrhœa. She was very intolerant of local examination, and no accurate diagnosis was therefore made. She grew gradually worse however and at last became so ill that she allowed the doctor's assistant at one of his visits to examine her. That assistant was much younger than he is to-day, and will forgive my telling the story I am sure. He laid the old lady on her side, and passed his finger into her vagina; he found the os uteri rigid and dilated, and felt a

hard stone-like substance filling up the cervical canal. The case at once became clear to his mind, for he took the hard substance to be a sequestrum, and a diagnosis of "necrosis of the os uteri" was then self-evident! He hurried back to Newhall Street for the "bone instruments," and with a pair of "necrosis forceps" he removed what turned out to be three vesical calculi—each as large as a hen's egg—from the interior of the uterus, into which they had made their way by ulceration through the bladder base.

Litholopaxy is without doubt the ideal operation for stone in the bladder, and in cases of small calculi in adults should always be performed. The present operation is still however a far from perfect procedure, chiefly for the reason that it is impossible always to say that the last fragment of a stone has been removed; and it is this last fragment which stands in the way of the operation's ideal perfectibility. It is the search for this last fragment which often makes what ought to be a simple and shockless procedure into an anxious and all disturbing one. It is this last fragment which prolongs the anæsthesia, which damages the bladder, which leaves the operator with a doubtful mind as to the completeness of his work, which induces the cystitis, and which kills the patient; and it is this last fragment which will always stand in the way of every operation where the integrity of a stone has to be destroyed before its removal is undertaken; for so long as the walls of the bladder are trabeculated, and so long as blood clots form in its cavity at the time of operation, so long will our search for fragments be wearisome and uncertain; and until we have some better means of negating the presence of the last fragment litholopaxy will not take so high a place in the estimation of the ordinary surgeon as its special supporters think it is entitled to.

The results which have been obtained by our Indian colleagues in patients at all ages by litholopaxy are magnificent. They are better probably than have ever been secured by any other method in any other country. Surgeon-Major Freyer has recorded 100 consecutive litholopaxies with one death. Results

in India however are no positive criterion as to what may be possible in Great Britain, and I am doubtful whether the Indian operators could obtain such low death rates here. Freyer claims to have performed lithotomy on Hindoo boys under 16 years of age 191 times without a death; a result far and away better than anything which Western surgery can, or in my opinion ever will shew.

It would be presumptuous of me to describe the operation of litholopaxy in detail, or to refer to the many fine points upon which discussion is sometimes raised. I may be permitted to say, however, that the most important practical matter connected with the whole business has to do with the position in which the patient's body is placed before the operation is commenced. See that the rectum is empty, arrange the patient's bladder—containing five or six ounces of liquid—so that the stone will come to lie on the posterior wall exactly opposite to your instruments as they enter its cavity, and then it matters not whose pattern crusher you work with, nor whose evacuator you have the greatest fancy for. This position is best secured by putting on a table without a cushion, by well raising the patient's sacrum on a block or pillow to a height of 10 or 12 inches, and by keeping the iliac spines at a horizontal level. I believe that litholopaxy in males should be restricted to stones of less than an inch in diameter, and that it should be performed on healthy patients with healthy organs, and although the published results of our Indian confrères point to its general applicability to children, I think that in them only very small calculi—say those of a few grains in weight—should be dealt with by a crushing operation at all. I would add finally that under no circumstances will I begin a litholopaxy without having a patient's full consent that I may there and then resort to lithotomy should circumstances arise which in my judgment demand it. Although I have so few litholopaxies to record, I have in almost every one of my stone cases considered the question of crushing before I have proceeded to the cutting operation.

Perineal lithotomy is the most rapid of all the methods for extracting a stone from the bladder, and for small or medium sized calculi in young males it may be a good procedure, but its rapidity of execution seems to me to be its only advantage. Of the several varieties I have personal experience chiefly of the lateral, and have usually preferred to employ the straight staff of Aston Key, and to make the incision a single one, instead of using the curved lateral grooved staff, and proceeding by the two-incision method—superficial and deep—as advocated by Thompson, and as generally practised. I like to wear a tube in the wound for 24 hours.

Perineal lithotomy is without doubt the showiest of all stone operations, and when dexterously performed is the most calculated to win the approval and the admiration of the inexperienced onlooker, but it is an operation in which some of the steps have to be taken in the dark, and for this reason alone it must of necessity be inferior to a procedure in which every detail may be seen; besides, too, the structures divided are greater in number, of infinitely greater complexity, and of greater physiological importance than in the high operation, and the dangers which surround the “workings” of the most skilful operator are incomparably greater than those of the supra-pubic section. An advantage which is claimed for the low over the high operation—that of better bladder drainage—will in practice be found to be a mere chimera and to have no solid foundation in fact. I have seen more bungling over perineal lithotomy than over most other surgical procedures. I have seen the rectum cut and the bulb divided. I have seen the staff missed and the tissue in front of the bladder opened. I have seen deaths from secondary hæmorrhage and pelvic cellulitis, all of which would have been impossible with the high operation; and although I have up to the present time cut for stone by the perineal route nineteen consecutive times without a death and without a serious complication, and have done perineal cystotomy more than twice that number for other bladder affections, I am inclined to think that we can do without the low operations altogether; because

all small stones can be more safely dealt with by litholopaxy, and larger ones can be better removed by the modernised supra-pubic operation.

Before leaving this part of the subject I should like to say that the low operation in women—vaginal lithotomy—is a bad surgical procedure, and in support of this I will briefly quote a distressing case which first came into my hands in 1880. A young woman, well-proportioned and healthy, had been cut for stone some nine or ten years previously. She had been miserable ever since through urinary incontinence. Attempts had been made to close her vesico-vaginal fistula without success, and at the time when I first saw her the opening into her bladder communicated from close to the external urinary meatus backwards nearly to the posterior bladder wall, so that four fingers could be easily passed through it. She underwent three operations at my hands and seven others subsequently elsewhere, but she at last, exhausted into the Workhouse Infirmary, broken in spirits and emaciated in health, and ultimately died worn out, a premature death, at 36 years of age.

The operation, which excels all others as a simple, sound, and unobtrusive surgical measure, is the supra-pubic section of the bladder. It is a somewhat different proceeding to the high operation of our ancestors, as it has been made comparatively safe by the introduction of rectal tamponnade, and by the modern methods of wound treatment. The dangers of contaminating the peritoneum and contaminating its cavity with urine have almost ceased to exist, and cellulitis and abscess, as elsewhere, has disappeared before the progress of antiseptic surgery. I have had 19 supra-pubic lithotomies performed without a serious complication of any kind, and I may say that I have opened the bladder by the high route more than 100 times for other diseases, and with the best results. The patients' ages have varied between 15 years and 70, and the weight of the stones between 48 and 100 grains, with an average of 204. I look upon this operation as one which in future will be applied to all these cases of

stone—in men or women, boys or girls—which cannot be expeditiously and thoroughly dealt with by litholopaxy. I have had less anxiety during and after this proceeding than when I have operated by any other method. There is no uncertain fear of a possible last fragment being left behind, and what has been cut through is exactly known, because every atom of divided tissue has been clearly seen. If I had a stone as large as or larger than a filbert in my bladder at this present moment I would rather be cut above the pubes than treated by any other method.

Holding the strong views I do upon the safety and simplicity of this high incision into the bladder, I may be pardoned if I describe in detail the operation which I practise.

The pubes having been shayed, the patient is laid supine on a table and the anæsthetic given. A large soft rubber Jaques' catheter is passed into the bladder and an empty rubber bag introduced into the rectum and inflated with air; the bag is best blown up by the mouth. There is no need to fill it with a definite quantity of water as is usually recommended. The bladder is now distended by injecting warm water through the catheter either by means of an ordinary metal or a Higginson's syringe. Here again it is a mistake to inject a given quantity of liquid as it is impossible to say what is the normal capacity of any individual bladder. I trust entirely to the feeling of resistance offered to the influx of the fluid, and continue to inject until a well-defined swelling is felt above the pubes so long as this resistance remains moderate. The surgical hand ought to be able to say how much pressure can be safely borne. When the injection is completed the catheter is withdrawn and a thin rubber tube tied lightly round the penis to prevent escape. Standing on the right of the patient a median incision is then made over the bladder, varying in length from one and a half to three inches, according to the size of the patient and the fatness of his belly. The greater part of this incision should be kept above that well-known and surgically important transverse furrow which marks the level of the upper border of the pubes,

and should expose the linea alba. The skin edges may be kept apart by the fingers of the left hand and the linea alba divided throughout its exposed length; the fleshy fibres of *Pyramidalis* muscle come into view. With the handle of the scalpel a way may at once be torn down between the recti muscles to a distinct layer of fascia—the fascia transversalis. This is always recognisable and is often mistaken for peritoneum. The edges of the wound are now held firmly apart by an assistant by means of well-curved blunt double hook retractors and the fascia cut through in its length with a scalpel. The perivesical fat is then evident and the knife can now be laid aside. A way must be made through this fatty layer by scratching and tearing until the interlacing fleshy bundles of the bladder muscle are distinctly seen, and if any vein lies on its surface it must be divided between two ligatures and got out of the way. Any vessels which have bled on the edges of the wound and taken up with forceps may be tied and the forceps removed. The retractors are now inserted down to the bladder wall and held well apart, and a sharply-curved tenaculum is thrust from above downwards into the bladder in the median line, care being taken that it enters the cavity, as evidenced by the escape of a little stream of the bladder contents by its side.

By introducing the tenaculum from above downwards a better hold is taken of the bladder wall and the peritoneal folds are less likely to be injured. The handle of the tenaculum is well raised by an assistant towards the umbilicus, and the bladder punctured downwards and backwards immediately below it with a scalpel having its back turned upwards. A free rush of water escapes through this puncture which should be about three quarters of an inch in length, so that the left index finger may be insinuated through it and the size of the stone determined. The opening can then be increased to any extent by stretching, and when thus sufficiently enlarged the stone may be most easily removed with finger and scoop. The bladder cavity may be cleansed by irrigation, the absence of a further calculus determined, and the ligature removed from around the penis.

The question of suturing up the wound in the bladder now arises, and the practice I have formulated for my own guidance depends upon the size of the opening in the bladder, the condition of the bladder walls and the quality of the urine. If the opening is a large one, it may be lessened by suture, but only when the bladder wall is healthy, and the urine fairly normal in composition should an attempt be made to close it altogether. A continuous Lembert suture of medium sized catgut answers best for this purpose, and is most easily applied by commencing at the upper angle of the incision, and working down the whole length of the wound and back again to the point of starting where the ends of the suture may be knotted together and cut off short. Each of the stitches must have a good hold of the bladder muscle, but must not penetrate its cavity. Whether the bladder is sutured or not, I lay a short stout drainage tube in the lower angle of the abdominal wound, having its inner end immediately adjacent to the opening in the bladder, so that the connective tissue layer in front of this organ shall be efficiently drained. A little powdered boracic acid is sprinkled into the depths of the wound, which is then closed by a few deep and superficial wire sutures. Triangular shaped dressings of absorbent wool are secured by a double spica bandage, and last of all, the rectal bag is emptied and withdrawn, and a half grain morphia suppository is slipped into the bowel.

The after treatment is simple. If the bladder wound has been left open, the patient may with advantage lie alternately on either side, and the tube may be discontinued in seven or eight days.

Statistics of the high operation published two or three years since shewed a mortality of 9 per cent., but this is monstrously high, and ought not in my opinion to be above two or three at the present time.

In concluding my paper, I would call attention to a few special points of interest in some of the above list of cases.

Stone hidden in Prostatic Urethra almost overlooked during the high operation.—No. 36 shows an important fact in con-

nection with the high operation to which I have seen no reference. When the bladder was opened a finger was introduced and no stone could at first be felt, but on carefully examining the outlet of the bladder the end of a stone was felt lying almost completely hidden within the prostatic urethra, and projecting only slightly into the bladder cavity. A casual examination might easily have missed such a calculus, and the experience of such a case guards one against error in future. The stone was easily dislodged with a scoop.

Bladder Suture in the high operation.—Attempts were made to close the bladder by suture on five occasions; both catgut and silk, continuous and interrupted, Lembert sutures being employed. Two only of the cases succeeded, the other three failed, and in one (No. 13) the supra-pubic fistula did not close until the bladder had been drained through a perineal opening. In all these cases a catheter was fastened in the urethra at the time of operation, and worn for 24 or 36 hours. In one of the successful cases (No. 14) a calculus formed about one of the sutures, which had probably been passed by inadvertence completely through the mucous membrane. This "suture calculus" dropped into the bladder some months afterwards, and, fortunately for the patient, was expelled spontaneously per urethram. It is interesting to note that the secondary stone was of the same unusual chemical composition as the original stone—viz., pure triple phosphates.

Secondary hæmorrhage occurred on two occasions only: (Nos. 10 and 18). Both were perineal lithotomies, and both had been cut on the straight staff. The bleeding was easily controlled by plugging the wound with gauze strips, passed by the sides of the perineal tube. In neither case was the bleeding very serious. Convalescence was delayed apparently two or three weeks in consequence, but both patients made perfect recoveries.

Scarlet Fever after operation.—No. 16, twenty-three days after operation, developed symptoms of scarlatina and was removed to the Borough Fever Hospital. The attack

of fever coming some three weeks after the operation apparently made no difference to his recovery, and the wound healed soundly in the usual time.

Stones which form in Morbid Bladders: Tubercle, etc.—No. 22 was a young man, an inmate for several years of the Workhouse Infirmary on account of chronic hip-joint disease. His right hip was firmly ankylosed, with the femur extended as the pelvis, and although it could not be placed in the position usual in lithotomy there was no difficulty in performing the ordinary lateral operation with the left limb flexed and abducted and the right standing straight from the table over the operator's left shoulder. The origin of the calculi in this case was instructive. They were phosphatic in composition, multiple in number, and all of them less than a hazel nut in size. They clearly originated as fibrinous or lymph pellets in the bladder cavity, and became gradually petrified by continuous soakage in phosphatic urine, presenting as they did every degree of hardness between the almost gelatinous globule and the well-formed stone.

Association with kidney calculus.—Intercurrent calculous kidneys were suspected on three occasions, but no operations were performed for their relief. I have successfully excised the kidney from a patient who had been cut for bladder stone some 8 or 9 years previously by another surgeon.

Relapsing Calculus.—No. 37 had been twice previously cut for stone by another surgeon some 12 and 14 years before coming under my care.

Association of Stone with Prostatic Hypertrophy.—No. 24 shews how in a patient known to have prostatic enlargement a large stone may for years be overlooked. The high section allowed of a prostatectomy being performed at the same time, the patient thereby being relieved of two maladies by a single operation. No. 43 was complicated by enlargement of the prostate, which made it so difficult to seize the small calculi in a lithotrite that the high operation was adopted.

Spontaneous Fracture.—A case coming under my care in Queen's Hospital in 1884, shews without doubt that calculi do fracture spontaneously in the body. The specimen which I hand round consists of hundreds of stones and fragments passed by an old woman, 80 years of age, during a stay of a few days in the hospital. She was sent to me as a case of vesical calculus, and before any operation was done she passed this large collection of calculi weighing nearly three ounces, and got rid of all her painful symptoms almost immediately. If you examine the specimen you find that some of the calculi are merely fragments of larger stones, and that at the exact centre of their broken surfaces is a small concave depression. These depressions correspond in size and shape to small hard rounded bluish stones seen in other parts of the specimen, which no doubt formed the nucleus of the larger stones before fracture occurred.

CLINICAL NOTES
ON CASES AT THE WORKHOUSE INFIRMARY,
UNDER THE CARE OF DR. SUCKLING.

BY B. F. JORDAN, M.B.,
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1.—*The influence of digitalis in double mitral disease.*

On October 17th, 1891, a man, aged 23, was admitted into the Infirmary. At first there seemed to be nothing of especial interest in his case. He gave a history of rheumatic fever ten years previous, and was found to be suffering from the usual effects of combined stenosis and regurgitation at the mitral valve. The cardiac lesion was advanced as illustrated by the fact that he had not been able to work for six years, and by the presence of the later symptoms of organic and progressive mitral mischief. His heart was large and dilated, the area of cardiac dulness

enlarged, the apex beat diffused and feeble, the pulse small and irregular, and there was an absolute failure to compensate the leakage at the mitral valve, so that backward venous congestion and forward arterial anæmia were both present, and to a marked degree. A loud churning presystolic mitral murmur was heard, loudest at the lower end of the sternum, and conducted towards the apex of the heart, while a soft blowing systolic murmur was heard faintly at the apex, but more loudly in the axillary region. There was reduplication of the second sounds both at the base and apex of the heart, and accentuation of pulmonary second sound in the pulmonary valve area.

Rest in bed and the administration of cardiac stimulants (including 10 minim doses of tincture of digitalis) effected a temporary improvement in the general condition. In the beginning of November he began to lose ground again; and on examination at this time shewed the following cardiac condition. Firstly, and most important of all, the presystolic murmur was no longer audible, a positive proof when associated with the gravity of the general condition, that the heart, so far from responding well to rest and general remedies, was steadily growing more and more weak. Secondly, it was noticed that there were twice as many beats of the heart (98) as were felt as a pulse at the wrist (49); the physical explanation being that alternate cardiac systoles were so feeble that they did not effect a radial pulsation. The cardiac systole that was felt as a pulse at the wrist was of moderate force, was heard best at the apex of the heart, and was followed by a second sound; while the systole which failed to be represented in the radial pulse was very feeble, was heard best over the right ventricle, and was not followed by a second sound.

The gravity of such a cardio-vascular condition may be judged from the fact of death ensuing three days after its discovery, and let it be incidently noted that the final intense paroxysmal dyspnoea was only made tolerable by hypodermic injections of morphine.

The case just recorded is interesting in that it affords a fairly

typical example of a class of cases described by Broadbent—cases of advanced mitral disease, in which mitral stenosis is present, in which digitalis is among the remedies employed, and in which, *shortly before death*, the gravity of the general symptoms is much increased, the presystolic murmur becomes inaudible, and every other cardiac systole is unrepresented in the radial pulse.

2.—*Sudden and Depressing Emotion as a cause of Cerebro-Spinal Sclerosis in a young woman aged 22.*

The following case, admitted September, 1891, has some features which make it worthy of record. Multiple sclerosis is, indeed, of sufficient rarity to make every undoubted example of the disease an object of especial clinical interest. The case recorded below was ordinary, indeed, in its symptoms, but was extraordinary in its origin. It was ordinary in that all the classical signs of multiple sclerosis were present. There was not wanting one of the essential symptoms and signs which, grouped together, form the clinical condition called "multiple sclerosis." Coarse tremor, increased by exertion, of head, neck, and arms; nystagmus on rapid motion of the eyeballs; slurred, scanning, and somewhat high-pitched speech; exaggerated reflex; ankle clonus; vertigo and a manner—now complacent and now emotional—all were present, and the diagnosis was easy and certain. The case, however, was extraordinary when its causation was investigated and considered. A careful enquiry elicited the following history:—At the end of January the patient, aged 22, was confined. Labour was tedious, and she was not able to resume her work for some weeks. She had been at work and in good health for about six weeks, when, one Thursday evening in April, she saw her husband in the company of a "gay" woman. She became violently angry and excited, and attempted to strike the woman. On the following Sunday, three days after this sudden mental shock, she complained of pain in the head and neck, and in the evening of the same day lost her speech *entirely* for two days, and only to return in its present slurred and scanning condition. Within the next

three days the characteristic tremor and incoördination developed. The above history, if true—and no flaw could be detected in it—is, I should imagine, almost unique. Here we have an undoubted example of a disease which, from the pathological point of view, has been described by Gowers as occupying a position between, on the one hand, subacute and syphilitic inflammations of the brain and cord, and, on the other hand, chronic (non-inflammatory ?) system sclerosis; and yet the symptoms in this case of multiple sclerosis appeared three days after sudden and violent mental shock, and were, in all probability, sufficiently established in a week for a diagnosis to be made. Mental distress is undoubtedly among the usual causes of multiple sclerosis, and such distress is notoriously among the more potent causes of nerve trouble—*e.g.*, insanity—in adults; but it was the sudden and acute onset of a chronic disease following so rapidly sudden and violent emotion that gave to this particular case of cerebro-spinal sclerosis its special and particular interest.

3.—*Senile Chorea in a woman aged 53.*

This case was not only interesting in itself from the comparative rarity of senile chorea, but it also bore a definite ætiological relationship to the case of multiple sclerosis just recorded. There was not, as in that case, a sudden onset of disorganised movement resulting from sudden shock and emotion, but there was a gradual development of choreic incoördination following on a period of prolonged mental anxiety and distress; and this development moreover was forced in a characteristic manner on the attention of the patient and her friends by the former beginning to “break the crocks” by dropping them from her hands. This common and domestic manifestation of incipient chorea was first noted four years before the patient came under observation at the Infirmary; and further inquiry into her past history elicited the fact that three years previous to entering the Infirmary in October of 1891 her symptoms were more marked than the symptoms, striking as they were, which presented themselves at the time of examination and which are now about to be recorded.

The following notes were made on October 18th, 1891 :—

1. Patient is a thin anxious looking woman, with evidently a nervous temperament.
2. Patient gives a history of screaming "fits" during illness.
3. Patient's mother "trembled and jerked" at about the same age as patient now is. Does not think her mother's complaint was so marked as her own.
4. Symptoms appeared after prolonged anxiety.
5. Jerky movement of face and tongue muscles.
6. Incoördination of speech from jerking of tongue. Speech rather high-pitched.
7. General choreic movement of limb muscles, especially those of left arm and leg.
8. Some paresis of left arm, and to a less extent of left leg.
9. No ankle clonus. Knee jerks present.
10. Slight movements seen during sleep.
11. Some irregularity of respiratory rhythm.
12. First sound at base of heart rather feeble.
13. Accentuated pulmonary second sound, probably resulting from a chronic bronchitis.
14. General health fair.
15. No history of rheumatic fever.

Since the above points were noted there has been some, though slow, improvement.

There were features in this case, especially connected with the personal and family history, which make it more striking than the ordinary run of cases even of senile chorea. These features were—

1. Prolonged mental anxiety, always a common factor in nervous breakdown in adults, being the only ascertainable cause.
2. The nervous temperament of the patient, as proved by (a) mental anxiety being sufficient to bring on a chronic nervous disease; (b) "screaming fits" being common during her illness; (c) History of "trembles" in mother after middle life.
3. The existence of most of the characteristic features of chorea in late adult life, viz., (a) duration and obstinacy to

treatment; (b) an absence of all relation to cardiac disease and rheumatism; (c) great severity and gravity of symptoms; (d) persistence of some choreic movements during sleep; (e) Mental anxiety as the cause of the disease.

4.—*Delusions during convalescence from Enteric Fever due to Cerebral Exhaustion.*

The following case is a good example of cerebral irritability, the result of exhaustion from acute (pyrexia) disease :—A boy, aged 16, was admitted to the Infirmary on October 27th suffering from enteric fever, and in an extreme typhoid state. The temperature was 102° , the tongue dry, cracked, and brown, the teeth and lips covered with sordes, the abdomen tense and somewhat tympanitic, the typhoid spots innumerable and widespread, the pulse dicrotic, the typhoid delirium rather noisy, and, as a proof of his extreme weakness, there was some general muscular tremor, and retention of urine for two days from atony of the bladder, necessitating the use of the catheter. For eight days the temperature was never below 102.4° , and was repeatedly only kept below 104° by tepid sponging. During the whole pyrexia period the boy was now delirious, and now noisy and peevish. On the 9th day after admission the temperature reached normal point for the first time, and for the ensuing 24 hours the boy recognised, though he did not speak to, his mother and nurses. The temperature never rose again above 99° , but the patient passed into a mental condition marked by emotion, by delusion of mind, and by hallucination of special senses. He wept if his momentary desires were opposed, his mind wandered, and was busy on the subject of his money and business; he heard words which were never uttered, he spoke to absent relatives and friends, and he saw things which had no material existence. This mental weakness was more marked at one time than another, but at no time for over a week was he mentally sound. During the greater part of this time he was fed under protest, and the first sign of improvement was his beginning to clamour for food. As a result of his previous high fever the boy was very emaciated,

but beyond a temporary repugnance to food there was nothing alarming in his bodily condition. Nine days after the establishment of this apyrexia mental weakness the patient was given large doses of perchloride of iron, and the gradual advance from liquid to solid food, if any deviation from routine treatment occurred at all, was made perhaps more rapidly than usual. On this treatment, summed up by the words "iron and feeding," the boy rapidly improved, and 14 days after the fall of temperature, beyond an occasional lapse into a somewhat childish way of talking, convalescence was thoroughly established in mind as well as in body.

It was interesting as throwing a light on the ease with which the boy's mind was thrown off its balance as the result of acute bodily disease, to learn from his mother that he had always been "a nervous boy," that he had often talked to himself when asleep, and that the first thing to draw her attention to his illness, was his crying out to his sister when both were indoors "to mind that the bull in the corner of the room did not toss her," thus showing that his brain was the first, as it was the last, organ to give outward manifestation of acute general disease.

5.—*Etiology of Eclampsia in adults.*

The underlying pathology of eclampsia in adults is sometimes extremely evident. It may be as evident to the mind as its resulting convulsion is to the eye. There are, however, instances, and they are by no means uncommon, when at best only a tentative diagnosis can be made, and when it is impossible to say that "the cause in *this* case is uræmia," "in *that* case epilepsy," for there are no doubt cases in which one is driven to conclude that the convulsion is the result of a complex condition based in its turn on a complex pathology.

The following case affords a good example of the great complexity of causation, which exists in some cases of eclampsia.

On September 24th, 1891, an old woman (aged 68), was admitted into the Infirmary for increasing weakness, and for what was described by her relations as "fainting" fits. From her

history it appeared that she had been subject for about six months to these fits, and that the first one occurred "some time" (the most exact date obtainable) after "a stroke," which had been preceded by headache and giddiness, and had been followed by a curious "repetition aphasia," two or three words in a sentence being repeated two or three times. The patient on examination was seen to be in a very feeble condition. Respiration was sighing, and there was a curious "triple time" of the cardiac beat, one beat of fair vigour being felt at the wrist, and two more feeble beats being unrepresented in the pulse. The cardiac dull area was enlarged, and the apex beat diffused. A systolic mitral murmur, not well conducted, was heard at the cardiac apex. The urine, which was reported to be gradually getting less and less in amount, was scanty, gave a thick cloud of albumen, and contained granular casts. Patient complained of headache and giddiness, and the day after coming in had a couple of "fits," after both of which she passed her water in the bed. The ophthalmoscope shewed nothing beyond some tortuosity of the retinal veins.

The diagnosis made at the time of the first examination was that of chronic nephritis with a failing renal heart, a failure shown by the peculiar heart rhythm, the lessening and albuminous urine, by vertigo and headache; and that the fits which, from the following description based on an actual witness of one were seen to be, at any rate, epileptiform in character, were uræmic in origin. The fit witnessed was typically epileptiform. There was an initial groaning noise, followed by loss of consciousness, and, in succession, congestion of the face, frothing at the mouth, protrusion of the tongue, general twitching of legs and arms—*beginning in the right arm*, pallor of the face, cessation of twitching, micturition and sudden return of consciousness; the whole fit lasting about three minutes. The third day after admission the patient only passed 14 ounces of urine, and that day might have been termed the day of many fits. Digitalis and caffeine were given, and in three days 40 ounces of urine were passed daily and the fits

stopped, not to appear again for 17 days. The pulse gradually slowed down to about 40, all the cardiac beats being represented at the wrist. After 17 days' absence the fits appeared again, but for a time were separated by an interval of two or three days. The patient remained in the same condition for a fortnight, at the end of which time the fits became more severe and frequent. In one day the patient had two fits of over half-an-hour's duration, and Cheyne-Stokes' respiration was observed at the end of both. Chloral hydrate and potassii bromidum were given, and the following day the patient seemed as well as ever she had been, but on the next day she had several rapidly succeeding convulsions in one of which she died.

The autopsy shewed the following conditions as bearing on the difficult question of the exact causation of the convulsions:—

1. Arteries of the brain atheromatous.
2. Patch of white softening in upper part of the left temporo-sphenoidal lobe, which was probably embolic in origin.
3. Cirrhosis of the kidneys.
4. Marked hypertrophy and commencing dilatation of the heart.
5. Mitral valves contracted, twisted, and atheromatous.
6. Recent granulations on the anterior aortic valve flap.

Now the points which come up for discussion in this case, with the *post mortem* light thrown on it, are:—

1. Were the convulsions simply uræmic in origin?
2. " " " " epileptic " ?
3. " " " " post hemiplegic " ?

or, most important of all,

4. Were the fits (as I believe they were) the result of more than one of the preceding convulsive states being found together in one patient.

Arguments for and against each of the three convulsive conditions as the sole cause of the convulsions can be advanced, but the varying and somewhat contradictory phenomena of the case can, I think, only be satisfactorily accounted for by supposing a uræmic, a post-hemiplegic, and even, perhaps, an

epileptic condition to be common factors in the complex convulsive product.

In favour of uræmia as a single convulsive cause we get :—
(a) cirrhosis of the kidneys ; (b) failure of a renal heart ;
(c) slow pulse ; (d) granular casts and albumen in the urine ;
(e) increase of fits as urine lessened in quantity ; (f) persistent headache ; (g) Cheyne-Stokes' breathing (common in uræmia, though seen in other conditions).

In favour of an old hemiplegia as the sole convulsive cause we get—(a) history of a "stroke" ; (b) persistent "repetition aphasia" ; (c) softening of the left tempero-sphenoidal lobe (very near the speech centre even when seen only by the naked eye) ; (d) twitching in fits beginning in the right hand ; (e) recent granulations on the aortic valves (embolic hemiplegia).

In favour of pure functional epilepsy we get—(a) a history so vague and relations knowing so little, that long existing *petit mal* might have been overlooked ; (b) fits absolutely undistinguishable in character from ordinary epileptic fits ; (c) triple rhythm of the heart associated with the convulsions at an early period in the case.

It is impossible then, to say the least of it, that uræmia, or that epilepsy, or that old hemiplegia can be singly assigned as the cause of the convulsion. Is it impossible, I would suggest, to believe that, as the result of a hypertrophied renal heart finally striking work, the patient passed into a uræmic condition, and that her convulsions were both more readily excited, and when excited were further coloured, so to speak, in form by a co-existing post-hemiplegic condition, and *possibly* by an epileptic state which had long been in existence though it had been overlooked ?

EYE SYMPTOMS IN CASES OF GENERAL DISEASE.

THE MIDDLEMORE LECTURES, 1891.

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IN my lecture to-day I intend to deal with changes in the visual apparatus indicating disease of the brain or spinal cord.

A knowledge of the ophthalmoscope is indispensable for the appreciation of these symptoms, and therefore a few words about it may not be out of place. Numerous instruments are figured in the catalogues, indeed many specialists I think consider that it is one of their first duties to bring out some modification of the many good instruments which we possess. The price varies from a few shillings to as many pounds, some of the dearer varieties, such as Cowper's, costing £6, while Benson's little instrument can be bought for about 6/-. The heavy cost of the former is principally due to the large number of lenses which it contains, and although these are very useful to the ophthalmic surgeon, they are not essential to the physician, and an instrument costing from 20/- to 30/- is all I think that he requires. Such an ophthalmoscope will contain a moderate number of lenses for correcting focal defects.

There are two methods of using the ophthalmoscope, the direct and indirect. Both are useful, but for medical purposes, the former is far more so. It is much easier to learn, and shows to the observer an exact and much magnified view of the fundus. Its disadvantage is that such a general view of the eye cannot be obtained, but as the physician is usually concerned in an examination of the disc and adjacent parts the objection has not much weight. In order to examine an eye by this method, the observer sits opposite the patient behind whose head there is a good light, which is reflected from the mirror of the ophthalmoscope into the patient's eye, the instrument being approximated

as closely as possible to the corner of the eye that is being examined. In examination by the indirect method, the ophthalmoscope is held some distance from the eye under observation, about 50 cm., and the light having been thrown into the eye, a lens of about 3-in. focus is held before it through which the emerging rays pass, an inverted areal image of the fundus being formed in front of it. Before I pass from this part of my subject, I should like to say a few words about the best way of learning to use this instrument. It is first necessary to master all the variations in the normal fundus, and this can only be done by examining a large number of healthy eyes, with or without refractive errors; when this has been done the diseases are very quickly appreciated. The majority of students however, I find, are anxious to put the cart before the horse, and the consequence is that they never gain a useful knowledge of the instrument.

The pathological changes affecting the optic disc may be broadly divided into two groups.

1.—Those where there is increased vascularity, with more or less inflammation.

2.—Those with diminished vascularity associated with wasting.

Optic neuritis, or papillitis, is the name given to the former. Gowers in his admirable *Medical Ophthalmoscopy* classifies the changes characterised by increased vascularity as follows:—

1.—Simple congestion of the disc vascularity, redness, softening, but no obscuration of the edge of the disc, and no swelling.

2.—Congestion with œdema, increased redness with slight swelling, obscuration of the edge of the disc, complete to the direct, incomplete to the indirect examination.

3.—Neuritis. Increased redness and swelling, with obscuration of the edge, complete in degree, partial or total in extent.

Simple congestion of the disc is difficult to recognise, unless it is developed under observation, or when it is more marked in one eye than the other. It has a tendency to include the

physiological cup, and to obscure the edge of the choroid. It is best seen by the indirect method of examination. The redness is brighter and softer than the ordinary tint of the disc. Such a condition is usually chronic, and rarely is the forerunner of actual neuritis. In the latter swelling comes on very soon after the hyperæmia. It may be a sign of congestion and degeneration of the whole optic nerve, but more often it results where uncorrected refractive errors exist, especially hypermetropia and astigmatism, in the early stages of amblyopia nicotina, or as the result of blows in the neighbourhood of the eye. Very occasionally it has been recorded as occurring in cases of general paralysis of the insane.

In the early stage of neuritis there is congestion with œdema, causing blurring of the edge of the disc. This is more noticeable when the eye is examined by the indirect method. The centre of the disc is often redder than the periphery, because the swelling here is less. The vessels may not be much altered, but the veins are usually enlarged. Actual inflammation soon occurs, the swelling and opacity increase, and the margins of the disc are completely obscured. Proliferation of nuclei, escape of leucocytes, and degeneration of nerve structure quickly follow. Hæmorrhages are often seen, and are usually small. The arteries are difficult to recognise, and the veins lose their central reflection. They are usually more dilated in the neuritis, resulting from meningitis, than in that from tumour.

In the most severe cases swelling becomes so great that it is impossible to see the disc without the aid of a convex lens behind the ophthalmoscope. The diameter of the disc largely increases from invasion of the neighbouring parts.

In severe cases of neuritis there is always more or less strangulation of the vessels from the compression of inflammatory products round them. The name choked disc is given to this condition. At one time the choking was considered to be caused by compression of the nerve from effusion into the nerve sheath, but although such an effusion usually exists most authorities now

believe that the compression is principally due to the former cause. The point is an important one with reference to treatment, as if the strangulation was due to the latter cause tapping the sheath of the nerve would evidently be necessary. Some surgeons adopt this procedure. After existing for some weeks the inflammation gradually subsides. Venous distension becomes less, redness and swelling diminish, and blood extravasations absorb. During the height of the disease vision is often but slightly affected, especially if there is no strangulation; but during the subsidence of the inflammation it often markedly deteriorates, and this is due to pressure on the vessels and nerve fibres by contraction of the cicatricial tissue left by the disease. When this occurs atrophy of the disc usually follows, the papilla changing to a dirty white colour and having a filled-in aspect very different from that which is seen in primary atrophy; moreover the vessels are usually blurred in parts and bordered by white lines. In other cases recovery is complete, and it is difficult afterwards to recognise with the ophthalmoscope that neuritis has ever been present. Vision is sometimes much impaired when the inflammation apparent has only been slight, and in such cases it is probable that mischief has occurred behind the disc in the trunks of the nerves themselves or the centres from which they rise. Loss of sight from papillitis comes on gradually. If the temporal half of the fields are only lost it points to pressure on the chiasma from a distended third ventricle.

Symmetrical hemiopic defects indicate an intra-cranial cause. Complete loss of vision in one eye with loss of the nasal half of the field in the other eye indicates disease of the cerebral hemisphere.

Some form of central disease is the most common cause of neuritis, such as cerebral tumour, meningitis, abscess of the brain, hydatid cysts and softening. Of these, tumour is far and away the more frequent. Certain blood conditions also originate the inflammation, such as Bright's disease, lead-tobacco poisoning, and anæmia, with these cerebral symptoms, especially head-

ache and vomiting, are often associated ; usually however other symptoms come to our aid in determining the cause of the neuritis, though the symptoms may strongly point to encephalic disease. I think it an important rule always to examine the urine where neuritis is present. Small white spots in the region of the macula point to a kidney origin.

The duration of neuritis is very variable, rapid cases run their course in about six weeks, this generally happens when the eye condition results from cerebral disease which is also running an acute course, such as meningitis, or in syphilitic disease rapidly modified by treatment.

In other cases the course is extremely chronic, many months elapsing before the inflammation subsides. The chronicity of the neuritis often depends on a similar condition of its cause.

Many theories have been put forward to explain the occurrence of optic neuritis, and the question is still openly debated. It is probable, however, that in a large number of cases it is due to a descending inflammation, which is always to be found in cases of meningitis, and usually in those of cerebral tumour. Distension of the sheath of the nerves is probably alone insufficient to cause papillitis, but it may intensify the condition, especially if the fluid in the sheath has irritating qualities.

In determining the cause of neuritis, it is of course necessary to eliminate as far as is feasible the presence of any of those general diseases of the system which are sometimes accompanied by papillitis. If these are absent, and there are other symptoms pointing to a cerebral cause, the source of the disease is probably intra-cranial. The appearance of the discs does not throw much light on the question further than that the very severe forms with strangulation of the disc usually occur in cases of cerebral tumour, as I mentioned before, while spots in the retina at a distance from the disc are indicative of a renal cause, but not necessarily so. But it must also be remembered that neuritis may occur from a cerebral cause without any other local symptoms being present. We see many such cases at an eye hospital, as failure of vision being the only complaint the patient naturally seeks advice there.

Neuritis occurs in a very large proportion of cases of cerebral tumours. Gowers thinks in about four-fifths of these cases. As a localizing symptom it is of no value, as it occurs in growths situated in all parts of the brain, but basal tumours are more likely to produce it. The nature of the growth also seems to have little influence in the causation ; but those which infiltrate and damage the nerve structures the least have less tendency to cause the condition. Much inflammation of the nerve structures round the growth certainly increases the liability. The size of the tumour seems to have very little influence. When symptoms of tumour have existed for a long time without neuritis supervening, its occurrence in a severe form often indicates the near approach of death, but it may arise at any time in the course of the disease, and a patient often lives for years after the inflammation has subsided and the discs have atrophied. As a rule, however, it may be assumed that the occurrence of neuritis indicates progress in the morbid growth which gives rise to it. Papillitis occasionally is found in cases of cerebral abscess, but its appearance does not in any way differ from that originated by cerebral tumour. Its rarity in such cases is probably due to the very rapid development of the abscess.

Meningitis of the convexity of the brain is rarely accompanied by neuritis. It most frequently results from the tubercular form which, as you know, is usually basal. The inflammation of the nerve is not often severe in these cases, the disc becomes red and hazy, and the veins distended. Its appearance often suggests a subsiding neuritis rather than a recent inflammation. Tubercle of the choroid may occur at the same time and should be looked for, and if found would render the diagnosis certain. Neuritis occurring from syphilitic meningitis is more severe, but in these cases it is impossible to exclude the possibility of a gumma being present.

In all cases of papillitis a very guarded prognosis must be given. In the chronic and less severe forms of inflammation it is more favourable, and is bad when there is evidence of much

intra-ocular mischief in strangulation of the disc. When vision fails markedly where the active progress of the disease is subsiding it is very bad.

The cause of the neuritis must also be taken into consideration. It is most hopeful of all in syphilitic cases, and especially if the attack is not very severe, and it is better when the growth is scrofulous in character than when it arises from other tumours.

Treatment must be directed against the cause of the disease. Local measures further than protection of the eyes from light and complete rest are of very little use. In syphilitic cases of course mercury and iodide of potassium must be vigorously used, and antiscrofulous remedies in suitable cases.

We now come to the opposite condition, namely, atrophy or wasting of the optic nerves. I have already mentioned that it takes place after severe inflammatory attacks of the nerves; such cases are called consecutive, secondary or post-neuritic atrophy, and can usually be distinguished from that occurring from other causes. The discs have a dirty white and filled-in appearance, and the vessels are frequently obscured in parts and bordered by white lines due to thickening of their coats and infiltration of their sheaths. A very large proportion of cases of atrophy occur without any previous inflammatory disturbance and are grouped as simple or primary atrophy. Atrophy also often follows retinal or choroidal disease, but with such cases we are not at present concerned.

The most prominent objective symptom of atrophy is a pallor of the disc, due to the contraction of the capillaries which always accompanies wasting of the nerve fibres. In the earlier stages of the disease it is often extremely difficult to decide if the disc is paler than it ought to be, and in making an ophthalmoscopic examination a few points must be remembered. The illumination must not be too strong, as such a light makes the discs look paler than they really are. They are normally paler in the old than the young, therefore the age of the patient must be remembered. When the choroid is deeply pigmented the discs look paler from contrast. A mistake is apt to be

made when there is a very large physiological cup; as it is always white in appearance the nasal part of the disc in these cases must be carefully observed, as it is never cupped.

There are two sorts of atrophy described: the white and the grey, but forms intermediate between them are most frequently met with. As wasting goes on the disc shrinks, and so becomes excavated. This symptom varies much in different cases, as sometimes, although the nerve fibres waste, the connective tissue of the disc does not alter or even increase in bulk. Pallor of the disc, however, with slight shelving commencing at the sclerotic ring is strongly indicative of atrophy. Primary atrophy often comes on without any apparent cause, but a very large number of such cases can be traced to disease of the spinal cord, of which the most frequent is that occurring in subjects of locomotor ataxia. In this disease the disc is usually of a grey colour, without much alteration in the size of the vessels. It often appears very early in the course of the complaint, and before any other symptoms have been noticed, and hence it is a symptom of great diagnostic importance to the general physician. We frequently have patients at this hospital suffering from commencing atrophy, who have never complained of any other symptom. When looked for, slight diminution of the knee jerks and the Argyle Robertson pupil may be found, but it may be months or even years before other symptoms are noticeable.

Atrophy occasionally occurs in general paralysis of the insane and in disseminated and lateral sclerosis. The reason of the connection is obscure, but the change in the nerve is probably an associated condition. It must be remembered also that the optic nerves are a direct prolongation of the central nervous system, and that they resemble the white matter of the brain and spinal cord. Many other cases of wasting have been described, such as the wasting from tobacco poisoning, sexual excess, menstrual irregularities, migraine, syphilis, and diabetes. A peculiar form also occurs soon after puberty as a hereditary condition, and only affecting the males of the family. In nearly

all cases of optic atrophy both eyes are involved but it is often more advanced on the one side.

Pressure on the optic nerves or chiasma often produces wasting. Hydrocephalus in this way also originates it from the pressure of a distended third ventricle. A large number of the babies who are brought to us because of complete or partial loss of sight are affected from these causes. Exostoses growths, etc., may produce it without any apparent previous neuritis. Narrowing of the optic foramen from bony thickening or injury to the nerve from a fracture through the foramen is a possible cause, but in such cases of course the disease would be usually unilateral. Loss of sight is manifestly one of the earlier subjective signs. Objects appear clouded or small print cannot be recognised, but in addition to the central acuity of vision being lessened there is always alteration in the fields of vision. and this is really a more delicate test as the fields will often be found to be contracted before central sight is in any way affected. The margin of the field is first attacked, the contraction gradually going on till only a small central area is left. Colour vision is also affected, and the fields for colour are almost always contracted even before the field for white is altered. The perception for one colour is sometimes lessened more than that for others. In spinal atrophies the contraction usually commences at the outer side of the field, but this is not universal.

Prognosis is always very bad, especially when the wasting accompanies disease of the nervous system elsewhere, and the larger the contraction of the visual field the more grave it is, as an extensive destruction of the nerve fibres is then indicated. Treatment consists in combatting the general condition on which the atrophy depends. Tonics, galvanism to the temples, the hypodermic injection of strychnia, or the inhalation of nitrite of amyl capsules have all been recommended. When there is a syphilitic origin and the damage to the nerve is not great much is to be hoped for. I have tried all forms of treatment, and in some cases have had very good results, but unfortunately the improvement which one gets is often only temporary. In one

case that I remember, that of a station master, suffering from atrophy dependent on locomotor ataxia, strychnia and galvanism caused his vision to improve from $\frac{5}{80}$ to $\frac{5}{10}$, and for eighteen months he was able to continue his work, but at the end of that time he returned, the disease rapidly progressing, and no treatment was of any avail.

One of the most important symptoms in cerebral disease is hemianopia; temporal or nasal hemiopia, by which we mean loss of the temporal or nasal half of both fields, is found in lesions of the chiasma. Lateral homonymous hemianopia, loss of the corresponding portion of each field may be due to disease of various portions of the brain, and is often a very important localizing symptom. It may be due to disease of the cortex, or to a lesion anywhere in the course of the fibres from there to the chiasma, but by noting other symptoms it is often possible to locate the seat of the lesion. In each eye the defect extends to the vertical line dividing each field of vision in half. The hemiopia is termed absolute when the perception of light, colour and form is lost.

As I described in my first lecture, the cortical centre for vision lies in the occipital lobe, probably occupying the cortex of the cuneus and superior occipital convolution, and the colour sense seems to reside in the superior and inferior occipital temporal convolution. Some cases have been reported where hemianopia was present for some time, and when *post mortem* examination showed no cerebral lesion excepting disease of the cuneus; in nearly all cases, however, where the symptom has occurred, disease of the superior occipital convolution has also existed, and in others the symptom has been found when this part of the brain was unaffected. Such cases are explained by assuming either that the disease penetrated deeply enough to affect the fibres coming from the cuneus and superior occipital convolutions, or that there is sometimes a departure from the normal anatomical arrangement. The important point is can hemianopia occurring from a cortical lesion be distinguished from that resulting from disease of the optic radiations, the

internal capsule, optic thalamus, or optic tract. Swanzy says, in his classical paper on this subject, that we may conclude that the hemianopia depends upon an occipital lesion, if it is unaccompanied by hemiplegia, motor aphasia, or paralysis of cerebral nerves as direct symptoms. When one or more of the three primary visual perceptions of colour, form, or light is unaffected the lesion is almost certainly cortical. When there is also peripheral contraction of the opposite field of vision the disease is probably situated in the cortex.

A lesion of the posterior limb of the internal capsule often produces complete hemianopia ; in such cases hemianæsthesia is sure to be present, and should the disease extend further forward to the anterior part of the posterior limb, hemiplegia will be added as a direct symptom ; if the disease is on the left side aphasia is often present.

In hemianopia due to disease of the optic tract, the hemiopic pupil is usually to be found, and becomes a very important symptom. To find it, light must be thrown from an ophthalmoscope obliquely into the eye so that it is concentrated on a portion of the retina, which is blind, the pupil then does not contract the light.

Loss of visual memory or mind blindness is a rare and very interesting symptom. In such cases sight is perfect, but the patient is unable to recollect having seen objects with which he was previously quite familiar. Old friends, even members of his own family will be passed in the street as strangers, and he is also unable to recall to his memory faces and places perfectly well-known before, and yet all the other intellectual faculties may be normal. When the friend speaks he is known at once. This symptom is due to a lesion of a cortical centre, the exact position of which is not known, but it is most probably very close to the visual centre. Gowers believes it to be in the anterior part of the occipital lobe, or in the posterior part of the parietal lobe, other authorities would locate it in the angular gyrus ; all however, are agreed in placing it very close to the visual centre. It most frequently occurs in cases of general

paralysis, and all the autopsies hitherto have been in such cases. If a *post mortem* could be obtained when the symptoms had followed cerebral hæmorrhage, much more definite knowledge might be gained of the position of the centre.

Word blindness, known by the name *alexia*, is a loss of the power of understanding written symbols. By most authorities it is considered to be a partial mind blindness. In the few cases where an autopsy has been obtained a lesion of the angular gyrus was found. The condition is not dependent on defective vision. The association of writing with things signified seems to be a function more particularly of the visual centre of the left hemisphere; as the speech centre is situated on this side of the brain this is what might be expected. There are degrees of word blindness, as in some cases a few words are recognised, while the majority are lost. A word-blind person can express his ideas in writing, but is unable to understand or read what he has written; he may learn to do so however by the aid of touch and the sensation accompanying muscular movement.

Another very rare and interesting symptom, first described by Berlin, is called *dyslexia*. The patient is unable to read more than a few words at a time owing to a feeling of dislike or disgust which comes on suddenly. After a short rest he can proceed again. There is no dimness of sight or pain in the eyes or head to account for the condition. It is a symptom of great importance, as it is usually the forerunner of serious cerebral disease, and all the cases recorded have rapidly ended fatally. In every instance the lesion was in the left side of the brain, and the inferior parietal lobule was the part chiefly involved.

To sum up, then, optic neuritis is a symptom of great diagnostic importance in helping to determine the existence of cerebral disease or not, but as a localizing symptom it is of little value. I have read of and met with many cases when the slight symptoms present were put down to hysteria, biliousness, or indigestion, when an examination of the discs would have shown neuritis, and proved that a much graver condition had to be faced, and I would remind you again that the inflammation

often is present when no failure of vision is complained of. In all doubtful cases, therefore, the ophthalmoscope ought to be used. Undoubtedly cerebral tumour is the most frequent cause, but the appearance of the nerves does not give us much help further than that the very severe cases with great strangulation usually depend on tumour.

Primary optic atrophy is of chief importance to the physician in indicating an early stage of some of the chronic degenerative diseases of the spinal cord.

Hemianopia is the only symptom in this lecture which aids much in localization, but it may be one of the greatest importance in guiding the surgeon to the exact place where a lesion dangerous to life is to be found. That pioneer in cerebral surgery, Dr. McEwen, of Glasgow, has published cases where hemianopia has led to a successful operation.

I have now concluded my very imperfect labour, and I can assure you that no one is more alive than myself to my shortcoming as a lecturer. If, however, I have succeeded in impressing you with the advantage that a little knowledge of this subject may be to the busy practitioner, and the aid that he may often obtain in difficult and obscure cases from a knowledge of the ophthalmoscope, I shall rest contented that the Middlemore lectures of 1891 have been of some use.

SOME POINTS IN PRACTICAL ANÆSTHETICS.*

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THE subject of anæsthesia has, especially during the last few years, been so often debated, and the battle between the rival champions of the various anæsthetic agents so often fought, that my reasons for bringing before you so well-worn a subject may not unnaturally be asked. The importance of anæsthetics,

* A Paper read before the Midland Medical Society, March 9th, 1892.

however, is so great, enabling us as it does to complete our work as surgeons leisurely and thoroughly, and to perform countless operations which would otherwise be impracticable for us to attempt, whilst on the other hand the occasional occurrence of death from its use is such a calamity, that I may well be pardoned for bringing forward and inviting discussion on the subject to-night.

The art has certainly still need of improvement. We can never reassure a patient before giving him an anæsthetic that the process is absolutely devoid of risk. In fact we do not at present possess a perfect anæsthetic. The perfect anæsthetic, if ever it be discovered, I take to be one which, while rendering the subject insensible to pain, yet shall never interfere with any of those involuntary processes which are necessary to life. Until such new compound is discovered, our great aim and endeavour should be to possess a more thorough knowledge of the action for good and ill of the chief agents we at present possess, rather than to enlarge a mere acquaintance with the multitude of preparations which are held—some with more, some with less truth—to be useful anæsthetics. Such a knowledge will enable us, if possible, to avoid ill effects, or at any rate, will help us to combat these effects when they occur. We may try to attain this end either by diligent physiological experiment on the lower animals, or by daily careful clinical observation on our patients.

Physiological experiment is, for the vast majority of us, an impossibility for many reasons. Nor can it be said that this circumstance is, for some reasons, to be regretted. It must be admitted that such experiments on this particular subject have, by their number, the extreme diversity of their results, and of the deductions drawn from them, only had a tendency to increase our doubts and troubles. First, to take the subject of chloroform anæsthesia for example. One school, forewarned and forearmed by the results obtained by the Glasgow Committee on Anæsthetics, in 1879, and by Dr. McWilliam's later experiments, state positively that chloroform possesses a direct

depressant action on the heart itself, and that careful unremitting attention must be paid above all things to variations of the pulse as giving the signal of danger. Another school, backed up by the weight of evidence more lately brought forward by the Hyderabad Commission on Anæsthetics, would have us pay our attention almost exclusively to the respiration. Chloroform, they say, invariably kills by first paralysing the respiratory centre, and never primarily attacks the heart. Some Scotch professors even go so far as to forbid any notice being paid to the pulse at all, as likely to distract attention from the respiration. In the face of evidence so conflicting and opposed, and yet supported on each side by the carefully conducted experiments of competent and able observers, the puzzled anæsthetist may well turn aside and endeavour, by diligent clinical observation, to find out for himself the dangers inseparable from anæsthesia, and having found them, try to avoid them.

Of all the anæsthetic agents we at present possess nitrous oxide perhaps most nearly approaches our definition of the perfect anæsthetic. But its action, when given alone, is too transient for it to be of much use in any but the shortest surgical operations. That chloroform is not a perfect anæsthetic, all I am sure will admit. Whether it be that it has lately, that is to say during the past year or two, been administered more frequently, or with less care than was formerly the case, or that we are becoming more conscientious, and so record our failures more than we did some years ago, I am not certain, but I never remember to have seen so large a record of deaths from its influence, as has appeared in the medical journals during the past year.

Ether, though not so frequently fatal as chloroform, yet does occasionally kill patients, and many a case, so the advocates of chloroform tells us, owes its termination indirectly to it, from bronchitis and other lung troubles it is apt to set up.

In like manner, methylene, bichloride, the A.C.E. mixture and the many other anæsthetics, have all been attended by calamities. With regard to the last two anæsthetics mentioned, they are in

my opinion, also open to the grave objection that they are not definite compounds, but mechanical mixtures of liquids of different volatilities.

Passing now to the subject of practical anæsthetic-giving, and confining my remarks chiefly to the subject of chloroform and ether anæsthesia, observations and criticisms which I make on our present methods will be drawn from my own personal experience. Many of my statements will, I do not doubt, lend themselves to serious and hostile criticism, but all of them have at any rate the merit of being based on practical observation.

Firstly, as to the preparation of the patient for an anæsthetic. All are agreed that a loaded stomach increases greatly the danger of syncope during anæsthesia, and is in many other ways most undesirable. But are we not occasionally apt to go to the other extreme? I have known many times feeble old people and delicate young children to be kept without food four or five hours, and have repeatedly seen such advice given in books. The combination of fear and fasting in such patients often causes extreme faintness before any additional shock due to the operation is added. In preparing such patients for operation and anæsthetic, I now make a practice of ordering them some strong beef tea about three hours before the time fixed, and in the case of old people give one or two tea spoonfuls of brandy immediately prior to commencing the anæsthetic.

Since doing this, I have found them to take the anæsthetic much better, and this gain is made without increasing the sickness, either during or after the operation.

A thorough examination of the heart and lungs should always be made when possible, with the systematic examination of the other vital organs a few days before the operation is contemplated. Any ostentatious examination immediately before the anæsthetic is very liable to increase the patient's fright, and with a heart beat of 100 or 120, as is often the case in such a state, no satisfactory or even useful examination can be made.

Regarding the important consideration as to what is the best anæsthetic to employ, that anæsthetist is the wisest who, unbiassed

by strong prejudice, chooses for each individual case that agent which experience has taught him to be most suitable. The exclusive use of one single anæsthetic for all classes of patients and under all circumstances is as much to be deprecated and avoided as would be the exclusive use of some such drug as antimony or aconite in all classes of inflammations; and the chloroformist who will never even give ether a fair trial, is as great a bigot as the etherist who declares that, while "death under chloroform is death by the hand of man, death under ether must be called death by the hand of God." When the choice is quite an open one, let each one choose that agent which long practical experience has given him greatest skill in administering. We all must have our individual preference for some one particular agent. For myself, I must confess that I never feel the same confidence either in myself, the anæsthetic, or the patient when giving chloroform as when administering ether.

There are certain cases in which the administration of any anæsthetic is attended with special risks, and is always fraught with danger. The chief of these are chronic drinkers, very stout people, people suffering from fatty degeneration of the heart, and patients with acute lung diseases, or obstructive disease of the upper respiratory passages. All of these are very troublesome patients to give anæsthetics to, and in some the employment of any anæsthetics is absolutely contra-indicated. In the two last class of cases mentioned I refer chiefly to patients with empyema, and children with membranous laryngitis. If any anæsthetic is given at all, just sufficient chloroform should be given to deaden the pain of the skin incision and keep the patient reasonably still. Some years ago I saw a patient suddenly die; more recently I have seen one give the administrator a very anxious half-hour, while under chloroform for the relief of empyema. In both cases the collection of pus was on the left side, and in both cases the syncope immediately followed the release of the intrathoracic pressure. I can only suggest that it is the sudden alteration in the heart's position by the withdrawal of the fluid from the pleura which gives rise to the symptoms in these cases.

Drinkers are so inured, by long habit, to stimulants of all kinds that ether seems quite powerless to anæsthetise them, and when chloroform is given they often require as much as would render three or four adults dangerously comatose before they can be brought under its influence. Fat full-blooded individuals again are bad subjects. When chloroform is given they frequently become cyanotic early in the administration and remain so throughout. If ether is given it is apt, at the commencement, to cause so much struggling venous congestion and secretion of mucus about the upper air passages, that they are in danger of being asphyxiated. The most suitable anæsthetic for such patients is nitrous oxide gas at the commencement, and then ether when anæsthesia is induced.

With regard to patients suffering from fatty degeneration of the heart, my knowledge of medicine, I fear, is too superficial to enable me to diagnose its presence with any certainty, or even in some cases to make me suspect its existence. But whenever I meet with a flabby middle-aged patient with an irregular or intermittent pulse, or history of occasional attacks of syncope I am always willing, nay anxious, to hand over the anæsthetic fee and its attached responsibilities to someone else.

Lastly : there is a class of patients to whom my attention was first directed by Mr. John Elliot, who had a large experience in anæsthetic-giving. They are usually nervous, excitable, who, with a presentiment that they are going to die, work themselves into a state of terror before the operation. I can thoroughly endorse the statement that they are exceptionally bad subjects for anæsthetics. Without being a fatalist or strong believer in presentiments, I am certain that a patient by making up his mind to die in spite of his doctor, does, in many diseases both medical and surgical, handicap his chances of recovery.

There are some cases in which the use of ether is inadvisable, and in which chloroform is, for some reason, generally to be preferred.

1st.—Children and old people. Ether with the cumbersome apparatus for its administration, frightens the former, and is apt

to unduly irritate the respiratory mucous membrane of the latter, and to give rise to pulmonary troubles. I have, however, given ether to patients over 80 without any after trouble.

2nd.—Patients with any chronic lung affection.

3rd.—In operations about the face and mouth, or in which lights have to be brought in close proximity to the face.

4th.—Drunkards. Because, as before mentioned, they are so steeped in stimulant that ether seems to be ineffective.

5th.—In operations for the ligature of large blood vessels. Ether causes venous congestion and so adds difficulties to the operation.

6th and lastly.—There is a class of cases in which there seems to be an inherent antipathy to ether. Patients will occasionally be found to take chloroform without any trouble, who, perhaps only a short time previously, had given trouble and anxiety whilst ether was being administered.

Opinions differ greatly as to the best anæsthetic for abdominal operations. The majority have a preference for chloroform, as producing greater abdominal relaxation and being attended less frequently with cough and sickness. But, I venture to think that relaxation quite as complete may be produced by ether, and vomiting may always be postponed until the operation has been completed and the wound closed, by keeping the patient well under its influence. For long abdominal operations ether should, in my opinion, always be used unless otherwise contra indicated.

The purity of the anæsthetic used is of the highest importance. None but absolutely pure and fresh chloroform should be employed. I have tried methylated chloroform, and in my hands I found that besides being more unpleasant to inhale and far more uncertain in its physiological effects, it caused more violent and prolonged after sickness than pure chloroform; and, more important than all, it was far more apt to affect the heart. It is well known that chloroform deteriorates on being kept, especially if exposed to light. I have noticed more than once that patients have taken chloroform badly which has been

kept for some little time, and on changing the chloroform, and using a fresh quantity, all these symptoms have disappeared. There is a slightly different odour about chloroform that has been kept long.

With regard to ether these remarks do not apply with the same force. Methylated ether is far more unpleasant to inhale (I can speak from personal experience of it), and causes more after sickness, but I have not hitherto observed any difference in the behaviour of patients when under its influence. In hospital practice, where the very great difference in their value has to be considered, I see no reason against the employment of methylated ether.

The use of morphia is advocated by some authorities prior to the administration of an anæsthetic as lessening shock and doing away with the struggling which usually takes place in the early stages. Any use of so powerful a drug is, in my opinion, unadvisable; the morphia, besides keeping the pupil contracted, and so depriving us of one of the signs of impending danger, is apt at times, in conjunction with chloroform, to produce a state of deep coma which may cause much alarm. It is however useful in two classes of cases.

Firstly, in those highly neurotic patients already alluded to, to prevent the faintness partly engendered by fear; and secondly, in operations in which the brain tissue is cut. Mr. Horsley has shewn that in these latter cases it causes a contraction of the small arteries, and thus helps the arrest of hæmorrhage which is always free when the brain substance is wounded.

(To be continued.)

REPORTS OF SOCIETIES.

BRITISH MEDICAL ASSOCIATION. BIRMINGHAM AND MIDLAND COUNTIES BRANCH.

PATHOLOGICAL AND CLINICAL SECTION.

Fourth Meeting of the Section, February 26th, 1892;
Mr. BENNETT MAY, F.R.C.S., in the Chair.

Swallowing a Scarf Pin.—Dr. T. Stacey Wilson shewed a boy, aged 13, who some months previously had swallowed a scarf pin. The pin was coughed up some four weeks afterwards in about a quarter of a pint of pus. Both the swallowing and the coughing-up were accompanied by a slight degree of cyanosis. The boy had no inconvenience from the presence of the pin during the month that it remained in his chest, except a little sub-sternal pain; careful physical examination also gave an absolutely negative result. It seems probable that the pin was lodging at the lower part of the œsophagus, but the case is very remarkable on account of the absence of symptoms in so serious a condition as the one in question.

Pigmentation of the Forehead.—Mr. G. St. Johnston shewed for Dr. Carter a man with marked pigmentation of the forehead resembling large freckles, the result, in all probability, of an injury received when ten years of age, with probable injury of the supra-orbital branch of the frontal nerve, causing a chronic congestion of the skin and resulting in pigmentation; just as in the case of people with marked pigmentation of the skin of the legs from constant exposure to the fire.

He also shewed a baby with facial paralysis, the result of injury received at birth from the use of forceps, only noticeable when the child cries. This condition often leads to a permanent semi-atrophy of the face.

Strangulated Hernia.—Mr. Haslam read notes of a case of strangulated hernia in which the bowel had come into the thigh

under Poupart's ligament and well to the outer side of the vessels. The patient, a woman aged 47, had had a large abscess twelve years ago which was opened in the right groin after confinement; this completely healed and there was only a small cicatrix visible. A few years after this she noticed a swelling below and internal to the anterior superior spine; this would disappear after lying down and come again with the upright position. She suffered no particular inconvenience from this until two years ago, when apparently there was some strangulation; this several times recurred but has been, until the present time, amenable to simple treatment. The attack for which she was admitted began two days before she came to the Hospital, and consisted of vomiting, constipation, pain at the seat of the swelling and over the lower abdomen, together with irreducibility of the swelling. On examination she was found to have an oval swelling below Poupart's ligament and fully an inch or more external to the femoral artery; the swelling could be traced under the ligament where it seemed to terminate in a deep process passing towards the pelvis. There was no impulse on coughing, some dulness on percussion, and no very great tension; in fact fluctuation could be felt; and at the lower part the coverings were very thin. The usual symptoms of intestinal obstruction were present, but the aspect of the patient was decidedly bad, suggesting more serious damage to the bowel than did the general symptoms. An incision was made over the length of the tumour, the coverings of which were so thin that the sac was opened almost by the first incision, a considerable quantity of serous fluid was let out, and a knuckle of small intestine moderately congested was found passing through an opening under Poupart's ligament. This opening was incised in a direction upwards and forwards and the bowel returned. No definite and separable sac could be made out, but what tissue there was was sutured up, so, as far as possible, to block the opening. The superficial incision was closed in the usual way and the patient made a good recovery.

Diffuse Villous Papilloma of Bladder—Surgical Kidney.—

Mr. F. Marsh shewed the bladder and kidneys of a boy æt. 16, who died twelve weeks after removal of a diffuse villous papilloma of the bladder, from abdominal pain and collapse (? influenza). The bladder walls were smooth and there were no signs of recurrence, but the right kidney was merely a bag of pus.

Excision of the central portion of a Parenchymatous Goitre ; Extreme lateral flattening of the Trachea ; Tracheotomy.—

Mr. F. Marsh exhibited a girl æt. 15, admitted under his care into the Queen's Hospital, Nov. 18th, 1891. She had had a swelling in the neck for six months, which had steadily increased in size, and for several weeks had caused great difficulty in breathing ; on one or two occasions lately she had almost been suffocated.

On admission the thyroid was uniformly enlarged, and apparently consisted of three lobes, the median one being of an oval shape and about the size of a duck-egg. Dyspnœa with stridor was marked and constant, and worse at night.

On Nov. 20th the central lobe was exposed by a long and slightly curved median incision ; it was then seen that the apparent division was only a superficial one on the right side, and was not complete on the left. Part of each lateral lobe was therefore resected and removed with this central portion, the only difficulty experienced being the hæmorrhage from the right superior thyroid vessels. The exposed trachea looked small and much more like a carotid artery than a trachea ; the apparent atrophy being evidently due to the effect of the surrounding pressure. Lateral pressure had almost completely closed the lumen, and patency had probably only been maintained by the antero-posterior counter pressure of the central part. As the pressure was removed the breathing became worse, and on completion of the excision asphyxia was imminent, the inspiratory efforts completely closing the trachea which seemed to have lost all power of expansion. Tracheotomy had therefore to be performed, and on account of the depth of the wound the longest tube available was only just efficient ; twice it slipped out within

the first few days and was with difficulty replaced, a fresh opening into the trachea having on one occasion to be made by the House Surgeon, Mr. L. Gamgee. The greater part of the wound healed by first intention, and the remaining parts of the lateral lobes gradually atrophied. In spite of this the inability to breathe on the withdrawal of the tube persisted, although with an opening through the posterior wall of the tube the orifice could be stopped for some little time without much inconvenience. To try to do away with this necessity for a tube, which seemed likely to become permanent, the following treatment was initiated about two months after the operation.

The tube was removed and a pair of laryngeal forceps were passed along its track into the trachea, which, by opening the forceps, was dilated laterally to its full extent, and the tube was then replaced. This was repeated almost daily for a few weeks, but the latter part of the time the tube was left out for as long a period afterwards as possible. These periods gradually lengthened, and at the end of January the use of the tube was finally discontinued, although without it there was still dyspnoea and stridor. She remained in the hospital until Feb. 17th and was then allowed to go home, her breathing being much less noisy.

When shewn, Feb. 26th, the remains of the thyroid could scarcely be felt; inspiration was still an effort, but the stridor had steadily diminished and was now only present in the more forcible attempts to inspire; the lumen of the trachea was evidently still small; the girl looked healthy and well, her blood was well aerated, and she felt that respiration was daily becoming easier. A week later very marked improvement had taken place in respiration, which had become almost normal.

Myoma of the Uterus.—Mr. John W. Taylor shewed a myoma of the uterus weighing 10 lbs., which he had removed from a patient 43 years of age seventeen days previously. The clamp separated on the fifteenth day, and the patient appeared to be making a good recovery. Mr. Taylor remarked that hysterectomy, as applied to this operation, was a misnomer, the operation being an amputation of the uterus and not a mere excision.

He also drew attention to some of the objections which may reasonably be entertained against the operation.

Vesical Calculus.—Mr. Barling shewed a vesical calculus with the bladder and kidneys of the patient from whom he had removed the bladder stone six weeks before death. The patient, a male aged 74, was admitted to the General Hospital with retention of urine and cystitis. One large stone and several small ones were found and removed by the supra-pubic operation; they weighed about two ounces. The prostate was much enlarged but the feeble condition of the patient forbade any attempt at prostatectomy. Death occurred from an ascending pyelitis and nephritis six weeks after the operation.

At the autopsy the pelvis of the right kidney was found to be occupied by a very large stone; in the pelvis of the left was one moderate sized stone and three small ones, like those found in the bladder, and consisting of oxalate of lime.

The method of formation of the vesical calculus was interesting. The nucleus was uric acid, then a formation of oxalate of lime, then another thick covering of uric acid. Cemented on to this, and giving the outside of the calculus a remarkable ruggedness, were several small oxalate of lime bosses. These were exactly like the small calculi found in the left kidney and in the bladder cavity, and had doubtless descended from the kidney and subsequently become fastened to the surface of the uric acid layer.

Both kidney pelves were dilated, and the renal substance was partly atrophied, and the remainder in a condition of acute and of chronic interstitial nephritis.

MIDLAND MEDICAL SOCIETY.

Wednesday, February 24th, 1892.

Mr. BENNETT MAY, F.R.C.S., President, in the chair.

Nævus Pilosus.—Mr. Chavasse shewed a case of nævus pilosus, occupying the entire half of the face, in a girl 17 years of age. The hair on the scalp of the affected side was thicker,

coarser, and of a darker colour than on the normal side. Although congenital and progressive the parents had not permitted any steps to be taken to retard the growth.

Alveolar Sarcoma.—Mr. Chavasse also shewed an alveolar sarcoma occurring in the cicatrix of a shoulder joint amputation, undertaken eight months before, for a mixed celled growth in the lower third of the arm, the patient being a man aged 53. To effectually remove the infiltrated pus it was necessary to resort to Berger's method of dealing with the subclavian vessels, and removing the scapula and two-thirds of the clavicle.

Vesical and Renal Calculi removed from the same Patient.—Mr. F. Marsh exhibited five calculi, two of which, weighing 52 grains, he had removed from the bladder on January 29th, 1891, and three, weighing 54 grains, from the right kidney on February 11th, 1892, of a man æt. 20.

According to the patient's statement the symptoms were of about seventeen years' duration. When about three years old he suffered from pain in the right loin, with hæmaturia and increased frequency of micturition. The pain had been almost constant ever since, was worse after exercise, and sometimes shot downwards. The hæmaturia and increased frequency of micturition were intermittent; the former was well marked, and usually lasted for about 10 to 14 days. When he was 14 years old the hæmaturia ceased. He has had no distinct attacks of renal colic. When he came to the Queen's Hospital in January, 1891, he had symptoms pointing to calculus both in the bladder and right kidney. He was admitted, and the vesical calculi were removed by supra-pubic lithotomy, the wound healing in ten days.

The calculi were chiefly composed of urates, and the smaller one did not appear to have been long in the bladder. The man was therefore advised to wait for a time before having the kidney explored. When he came again to the hospital in December, 1891, he still had the renal symptoms, and was also suffering from frequent seminal emissions, which was really the reason of his attendance at the hospital. He was treated for

this a short time, and then admitted with a view to nephrotomy, but a suppurative inflammation of the right middle ear developing, the operation was postponed for a few weeks until this was cured. During this time the urine was repeatedly examined, and occasionally a few pus cells were seen, but never any blood cells or crystals, the percentage of urea was normal. Percussion or pressure over the right kidney always caused pain, more marked on the anterior than on the posterior surface. No pain could be elicited by manipulation of the left side. There was no clear history of renal colic.

Right lumbar nephro-lithotomy was performed on February 11th, 1892. One calculus was felt embedded in the kidney tissue on the anterior surface, and removed by an incision directly over it. It was about the size and shape of a small marble covered with little spikes, and was probably the cause of much of the pain. The second, the largest, and the third, the smallest, were removed respectively from a calyx and the pelvis by a fresh incision through the kidney substance. The first stone was composed almost entirely of oxalate of lime, and the two others chiefly of urates, the third one having a striking resemblance to the smaller one found in the bladder.

The different layers of muscles were carefully approximated by buried sutures of silkworm gut, a drainage tube was inserted down to the kidney for 48 hours; the wound healed by first intention, no urine coming through it. For a week a fair amount of blood was passed with the urine, it then became clear, and the average daily amount since passed has been approximately forty ounces.

Congenital Dislocation of both Crystalline Lenses.—Mr. Eales shewed a young woman æt. 16 years, who had congenital dislocation of both crystalline lenses. In the right eye the lens was small and opaque, and was found in the anterior chamber. There was much keratitis and circum-corneal injection, and $T = + 1$. From the history the eye had been in this condition for some time previously. In the left eye the lens was small and free from opacity, the cornea clear, and the eye healthy and

quiet. When shewn the lens was in the anterior chamber, though a few hours previously it was seen behind the iris, the upper edge occupying the centre of the pupil, and being tilted somewhat forwards. The lens had been found usually to be in this position, but had been seen on two or three occasions in the anterior chamber.

Ruptured Globe.—Mr. Eales also shewed a lad æt. 13, who was suffering from a ruptured globe. The lens was displaced into the vitreous. The retina was detached, $T = -2$, and the sclerotic was ruptured below, for a considerable extent, about the equator; the anterior parts of the eye being unruptured.

Mr. Eales also shewed a miner æt. 33, whose globe was ruptured in the inner ciliary region, the ciliary processes being incarcerated in the wound; the iris being also considerably detached at the upper part from the ciliary body; the result of a wound with a pick some ten days previously.

Mr. Eales also shewed a man æt. 24 years, who had a sinus opening through the upper lid close to the nose, and reaching in a direction almost directly backwards for about two inches. Fluid injected into the sinus came down into the nose.

Mr. Eales stated that this man first came under his notice on Feb. 17th, complaining that in a brawl on Dec. 8th he had been struck by another man, who had his pipe in his hand when he struck at him, and that ever since the sinus had existed and would not heal. He was at once put under chloroform, the opening of the sinus enlarged and examined, when a hard substance was found and extracted by forceps, which on examination proved to be the vulcanite mouthpiece of a tobacco pipe, broken off, and measuring exactly two inches in length. This Mr. Eales also shewed to the meeting.

Paper.—Mr. Eales read a paper on injuries to the eye and adjacent parts.

Wednesday, March 9th, 1892.

BENNETT MAY, F.R.C.S., President, in the Chair.

Piece of Brass in Lens.—Mr. Antrobus shewed for Mr. Eales a lad aged 14, brass worker, with a piece of brass situated in the lower and outer part of the crystalline lens, which had been there fourteen days, the lens retaining its transparency.

Perforative Appendicitis.—Mr. Ratcliffe shewed a case of perforative appendicitis.

H. W., aged 15, glass worker. *History.*—Five years ago patient was in hospital with typhoid fever. On January 22, he returned from work seeming well. He lay down on the sofa and soon afterwards complained that he had the “belly-ache,” the pain being in the upper part of the abdomen, above and in the region of the umbilicus. He came up to hospital and was treated as an out-patient. On the following day (23rd), he was admitted as an in-patient, under the care of Dr. Wilson. There was no constipation before the commencement of the illness, but it was marked after.

On *admission*, abdomen was distended all over. No tumour could be felt anywhere, and the pain was almost entirely confined to the *left* iliac region. There being little or none on the right. Patient continued in this condition till the 30th, when he suddenly became collapsed, with profuse perspiration and feeble pulse, and the abdomen became extremely distended and tender. He was taken to the theatre for operation, but died before it could be done.

Post mortem.—The small intestine was somewhat distended throughout. There was marked general purulent peritonitis. Over the anterior surface of the vermiform appendix a piece of small intestine was matted by peritonitis so as to form an abscess cavity the size of a walnut, the upper boundary being the last two inches of the ilium, the outer wall formed by the cæcum. This cavity had burst into the general peritoneal cavity.

The appendix was secreted in this cavity, half inch being wanting in its continuity. There was a stump quarter inch long

attached to the cæcum. This stump had its lumen occluded. The rest of the appendix was adherent to the posterior wall of the abdomen outside the cavity. No calculus could be found. There was no pus behind the cæcum.

In the left iliac fossa there was a coil of small intestine more markedly inflamed than the rest, but nothing else.

Remarks.—It is interesting to note that this boy had had typhoid previously; this probably causing narrowing of the opening of the appendix, which becoming blocked had formed a cyst, not giving rise to any symptoms. The first symptoms would be probably due to rupture of this cyst. Adhesions forming the second and final symptom were due to the bursting of this into the general peritoneal cavity. Perhaps the most interesting feature of the case is, that at no time could any particular tenderness or any signs of tumour be got in the right iliac fossa. In the first instance the pain was above the umbilicus; and after admission entirely confined to the left iliac fossa, rendering the diagnosis of appendicitis well nigh impossible.

Cysticercus Cellulosæ.—Mr. Ratcliffe also shewed a cysticercus cellulosæ in the arm. J. L., a middle-aged man, who lived largely on pork and bacon, came up complaining of a small swelling about the size of a large hazel nut on the inner side of the biceps muscle of the right arm. It had been growing for twelve months, and had given rise to pain for the last two. On removal it was found to be a small cysticercus about half an inch in diameter.

Imperforate anus with a fæcal penile fistula.—Mr. Heaton shewed an infant on whom he had operated for the relief of impertorate anus with a fæcal penile fistula. The child, an otherwise healthy male infant, had on the under surface of its penis, about three-quarters of an inch from the end of the glans, a small fistula from which for the first few days of its life a constant discharge of meconium took place. The anus appeared natural, but on examination was found to lead into a blind cul-de-sac. The rectum was found about three-quarters of an inch from the end of the anal cul-de-sac. It was opened and

its mucous membrane stitched to the edges of the skin incision. The opening of the fistula into the rectum was on its anterior surface about half an inch from the blind end. The fistula had no connection with the urinary passages. Since operation the child had gained in weight, and at present there was no tendency to contraction of the newly-made anus.

Paper.—Mr. Heaton read a paper on *Anæsthetics* (see p. 228).

REVIEWS.

URIC ACID AS A FACTOR IN THE CAUSATION OF DISEASE.*

DR. HAIG is well known to the profession as the author of a large number of able and original papers dealing with uric acid as a factor in disease. The present volume is a very successful attempt to weld those scattered publications into a concise and readable treatise in which the principal points of his numerous researches are marshalled in order, discussed and illustrated.

The origin of Dr. Haig's work is not without interest. From boyhood he had suffered from very severe headache, of the type known as migraine, and his reading on this subject having informed him of its supposed relationship to gout he commenced to study his uric acid excretion with the result that he discovered a correspondence between the headaches and an increase of the uric acid in his urine. Further investigation led him to the conclusion that uric acid is normally formed in the body in the proportion to urea of 1-33, and that variations in the amount excreted depend, not upon differences in the quantity formed, but solely upon the conditions which favour or retard its elimination. These conditions he believes to consist in alterations

* Uric Acid as a Factor in the Causation of Disease. By Alexander Haig, M.A., M.D. Oxon., F.R.C.P. London: J. and A. Churchill. 1892.

in the alkalinity of the blood. When this is low the uric acid is deposited in the organs (liver and spleen) and tissues (fibrous tissues of joints, etc.); when this is high the uric acid, in the form of soluble urate circulates in the blood and is eliminated by the kidneys. But when an excess of soluble urate is present in the blood it gives rise to various marked symptoms, of which high arterial tension, mental depression, incapacity for work, and headache are the most obvious. He believes that he has proved satisfactorily by experiments on himself and others that he can produce all these symptoms by a dose of alkali, or cause them to disappear by a dose of acid. He states that the effect of a dose of acid on himself, when suffering from a uric acid headache, with mental depression, hard pulse, etc., is to remove the headache, make him bright and able to work, and soften his radial pulse; but he gets at the same time sharp shooting pains in his joints, very significant of gouty arthritis. On the other hand he could bring on a headache with its accompaniments by taking alkalis.

Further, he has found that certain drugs, such as opium, antipyrin, ammonia, mercury, lead, iron and other metals, lithia, sulphates and chlorides, act like acids, driving the uric acid out of the blood into the organs and tissues; while salicylates possess the extremely valuable property of eliminating soluble urates in a form which does not give rise to the distressing symptoms caused by other alkalis, such as citrates, bicarbonates, etc. He finally succeeded in freeing himself from his headaches by living on a vegetable diet, abstaining from alcohol, and occasionally using salicylate of soda.

All this has been worked out with great care, and seems to us to be a very excellent contribution to our knowledge of the pathology of migraine and of uric acid. The statement that lithia acts like an acid should not be passed over without notice, as it is not in accordance with clinical observation of the mental depression, etc., produced by its use in gouty persons. But Dr. Haig applies his facts and theories to a number of other diseases, and comes to conclusions about which it is only

reasonable for him to expect that the profession will hesitate before accepting them completely. He believes that epilepsy, high arterial tension, and mental depression are mainly dependent upon uric acid, and may be successfully treated by the same plan. There is much in this idea with which we are disposed to agree. That is we believe that there are cases of epilepsy, of mental depression, and of high arterial tension, which may be greatly benefitted by vegetarian diet. Dr. Haig wishes to include rheumatism among the diseases due to uric acid, and he meets the statement of Sir Alfred Garrod that uric acid is not present in the blood of rheumatism by asserting that it has all gone into the joints; he defines gout as that condition in which, a moderate amount of uric acid being present in the blood, a deposit takes place in a joint which is injured or specially strained as in walking, while in rheumatism the amount of uric acid present in the blood is greater, and is suddenly driven into the joints under the violent influence of a general chilling of the surface of the body. He thinks the frequency of rheumatic affections in young persons is accounted for by the excess of uric acid, which is liable to occur in children who eat largely of nitrogenous food, and by their relatively greater surface to mass favouring the influence of chill. That there are relations between rheumatism and gout, which no one has yet satisfactorily explained, is a fact which should make us receive Dr. Haig's suggestion with respect, although there is a good deal yet to be explained before this view is quite acceptable.

The recognised relation between gout and glycosuria has led Dr. Haig to speculate whether the presence of uric acid in excess in the liver may not be a cause of glycosuria, by giving rise to congestion of that organ. At present the pathology of glycosuria is too complicated and too obscure for us to relish this suggestion. It leaves the relationship of the pancreas altogether out of consideration, while it is not supported by any evidence which makes it really worthy of much notice.

Finally, Dr. Haig points out the important relation of uric

acid to Bright's disease, and insists upon the undoubted fact that many of the symptoms of Bright's disease are really dependent upon uric acid in the blood. But this chapter is marred by the author's omission to state that this is only true of one form of Bright's disease; while he seems to us to complicate his proposition unnecessarily by taking up Semmola's theory of hetero-albuminæmia, or the hypothesis that the uric acid changes the albumen of the blood into a form which irritates the kidneys and sets up nephritis. He makes things still worse for himself by suggesting this as the explanation of "functional" albuminuria and paroxysmal hæmoglobinuria. It must be remembered that Semmola says that the continued passage of this hetero-albumen causes nephritis, but cases are known to the writer where albumen has been passed continuously for many years by the subjects of functional albuminuria and of paroxysmal hæmoglobinuria without nephritis resulting. On the other hand we fully believe what Dr. Haig expressly denies, (p. 207), namely, that the prolonged and excessive elimination of uric acid by the kidneys eventually produces nephritis.

The final chapter contains chiefly the warning that the alteration in diet should follow the removal of the accumulated uric acid by a course of salicylates, or the lithæmia following increased alkalinity of the blood will give rise to feelings of depression, etc., which will be attributed to the want of the accustomed food and alcohol, so that the patient will probably abandon the treatment.

We may also mention that Dr. Haig thinks salicylate of soda prevents the reaction after opium, which forces the opium-eater to seek relief in another dose, and he recommends its use in the treatment of such cases.

With the exception of some horribly misprinted German on p. 129, the production of the book is worthy of all praise.

**REASONS WHY THE OFFICE OF
CORONER SHOULD BE HELD BY A MEMBER OF
THE MEDICAL PROFESSION.***

WHEN the late Coroner for Liverpool, Mr. Clarke Aspinall, died at the end of last year, Mr. F. W. Lowndes was presented with an invitation, signed by seventy of his medical fellow citizens, asking him to become a candidate for the office, and the Liverpool Medical Institution afterwards passed a resolution strongly advocating the appointment of a medical coroner, and supporting Mr. Lowndes' candidature. However, he found himself quite unable to contend against the prepossession which existed in the minds of members of the Liverpool Town Council in favour of appointing a solicitor. The two previous coroners had been solicitors, the system had worked well, or was supposed to have done so, at least there was no glaring reason for a change, and none was made. Another solicitor was appointed, and Mr. Lowndes was left. In consequence of this defeat, and his experience of the want of knowledge of the issues involved, Mr. Lowndes has written this little pamphlet to help to set the claims of medical men to the office of coroner more clearly before future electors, and in the hope of furnishing aid to medical candidates in such contests as may hereafter arise.

Briefly summarised, the author's argument is that the function of a coroner is to determine the cause of death, where this has occurred suddenly by violence or by unknown means, therefore one who possesses a medical education and training is far better qualified than a lawyer. We think there can be no question that this is so, but the matter may be put another way, and as it is put that way by the public, we must recognise this aspect of the question. The office of coroner is one of great antiquity, dating from Saxon times; its origin seems to have

* Reasons why the Office of Coroner should be held by a member of the Medical Profession. By Frederick W. Lowndes. M.R.C.S. Eng., Surgeon to the Liverpool Police. London: J. & A. Churchill. Liverpool: F. & E. Gibbons. 1892.

been plainly democratic, and its object was clearly to afford protection to the poor and weak against the rich and powerful. The coroner's business was and is to enquire into the cause of all sudden deaths, or deaths by violence, or cause unknown, so as to determine whether or not they have *resulted from a criminal act*, and where this is the case to fix, if possible, the responsibility for the crime upon the guilty person. It is this relation to crime which, in the public eyes, gives the chief importance to a coroner's inquest. The actual cause of death is comparatively of small importance where it is quite certain that there was no relation to crime. Looked at from this point of view, inability to fix accurately the precise cause of death, however undesirable for sanitary and other reasons, is not regarded as a serious objection to a legal coroner.

But, admitting all this, we do not think it has ever been shewn that medical coroners are less ready to appreciate the criminal bearings of the cases that come before them, and we believe that there are to be found a sufficient number of judicially-minded and well educated members of our profession who would make much better coroners than the average solicitor, who is usually elected on account of his services in or to a Town or County Council. But we should be glad to see young men endeavouring to fit themselves for these appointments by special training. The medical profession is so overcrowded that everyone who desires to make his way must study his equipment. These offices are numerous and well paid ; and they are certainly to be had by a little effort. Our professional training gives us three-fourths of the required knowledge ; some legal training will supply the remainder. The latter may be acquired by attending lectures, and taking the law degrees of Cambridge or London Universities, or being called to the bar. We believe that candidates so qualified will, in the majority of instances, succeed ; and that in a short time we may expect the same value to be placed on such training as at present attaches to sanitary science qualifications, without which, we believe, no candidate would stand any chance for an important public health appointment.

A STUDY OF INFLUENZA AND THE LAWS OF
ENGLAND CONCERNING INFECTIOUS DISEASES.*

THIS book contains a paper read by Dr. Sisley before the Society of Medical Officers of Health, in which he advocates the inclusion of influenza among the maladies to be dealt with under the Infectious Diseases (Notification) Act, 1889, and that it should be made a "dangerous infectious disease" under the Public Health Act of 1875. We think most of our readers will agree with us in thinking that these proposals are quite impracticable, and that if they could be enforced they would paralyse society, and lead to worse evils than those they are intended to remedy. The second paper is on the spread of influenza by contagion, which repeats very briefly some of the evidence generally known on this subject, with other matter derived from the author's personal experience. This is followed by a paper on the prevention of the spread of influenza, in which the author recommends washing the conjunctiva with a solution of boric acid (!), avoidance of all contact with infected persons, disinfection of all letters and parcels, and the closure of elementary schools. There is nothing very ingenious in these suggestions, while experience has shown that the last is unnecessary, as the disease has at no time become seriously epidemic among school children.

To this paper is appended the opinion of Sir Frederick Pollock that a Local Authority *probably* has the power to include influenza among "dangerous infectious diseases;" that it is within its discretion so to apply the act; that the Local Government has power to compel the Local Authority to perform its duty, and has large powers in the face of what it may deem a "formidable" outbreak. The remainder of the book is taken up with reprints of the Acts of Parliament bearing upon this question.

* A Study of Influenza and the Laws of England concerning Infectious Diseases. By Richard Sisley, M.D. Lond., M.R.C.P. Lond. London: Longmans, Green and Co. 1892.

We have seen something and heard more of the effect of influenza in disturbing normal mental equilibrium, and perhaps some such explanation may account for Dr. Sisley's very exaggerated views of its danger, and of the means which should be taken to protect society against its ravages.

INTRODUCTION TO THE ANTISEPTIC TREATMENT OF WOUNDS.*

WE have in this little book a terse description of the modern antiseptic treatment of wounds, as practised in the wards of a surgeon holding the foremost position in continental surgery. Here every detail is laid down with precision, sometimes with a minuteness which is almost wearisome; but perhaps this is unavoidable in a manual intended for students as well as practitioners. An advanced believer in the germ theory of disease, and especially in the possibility of preventing wound infection by taking pains, Billroth has greatly modified the cumbrous antiseptic measures in use ten years ago. Perchloride of Mercury and Iodoform are now used almost to the exclusion of Carbolic Acid. Beginning with "Preparations before the operation" a description of all the precautions to be taken then and subsequently is given, together with the method of preparing and preserving the various materials used.

To the modern English surgeon in hospital practice all this is of course familiar and is sometimes improved upon, nevertheless we think that Surgeon-Captain Kilkelly has performed a useful labour in preparing this translation for the English reader.

* Introduction to the Antiseptic Treatment of Wounds according to the method in use at Professor Billroth's Clinic, Vienna. Translated from the German of Dr. Victor R. V. Hacker, by Surgeon-Captain C. R. Kilkelly, M.B., Army Medical Staff. London: Percival and Co.

CONSUMPTION :
HOW TO PREVENT IT AND HOW TO LIVE WITH IT.*

THIS little book is evidently written for the laity. It explains in simple language the nature, causes, and mode of origin of consumption, points out how persons predisposed to the disease may order their lives so as to afford themselves the best chance of keeping healthy, and finally describes the mode of life, climate, exercise, diet, and clothing most suitable for those who have unfortunately become affected. We have looked carefully over these pages and find that the author's recommendations are in the main sound and judicious, but it is another question whether it is wise to write such a book for the laity. A consumptive person or one predisposed to the disease can acquire all the information he needs by consulting a medical adviser, who would indicate what was most suitable for the individual case, which such a book as this cannot do, while it tempts patients to try to decide for themselves with great risk of disaster following such unwitting choice. We believe that such publications are opposed to the best interests of the sick and should be discouraged by the medical profession.

EPITOME OF MENTAL DISEASES.†

THIS is pre-eminently the most useful guide to all matters connected with insanity which may arise in ordinary medical practice, and we strongly advise all our readers to buy a copy and keep it on their shelves. The matter is arranged alphabetically under various headings, and so is very readily accessible. The nature

* Consumption : How to prevent it and how to live with it. Its nature, its causes, its prevention, and the mode of life, climate, exercise, food and clothing necessary for its cure. By N. S. Davis, Jr., A.M., M.D. Philadelphia and London : F. A. Davis. 1892.

† Epitome of Mental Diseases, with the present methods of Classification of the Insane and the existing Regulations as to "single patients," for Practitioners and Students. By James Shaw, M.D., Qu. Univ. Irel. Bristol: John Wright and Co. London : Simpkin, Marshall, Hamilton, Kent and Co. Ld. 1892.

of the contents is sufficiently described in the title. They are a well-arranged compilation collated from various standard works. The first chapter gives the various definitions and classifications of insanity; the second, the symptoms of insanity with the mental diseases in which they occur; the third, an index of mental diseases with their synonyms and symptoms; then follow chapters on the etiology, diagnosis, prognosis, pathology and treatment of the various forms of insanity; and finally an account of the laws relating to the insane in this country and in the principal states in America.

THE MEDICAL ANNUAL AND PRACTITIONER'S INDEX.*

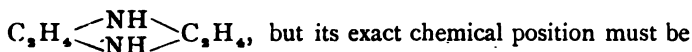
THE Medical Annual continues to be, for its price, unquestionably the best epitome of useful information presented by any year book. It is the practitioner's *vade mecum*; no one can afford to do without it. It contains the most useful and recent information on the treatment of disease, and the use of new drugs, together with much of the recent scientific progress of medicine. The advertisements in themselves constitute a mine of varied knowledge on all sorts of subjects germane to medical practice.

New Inventions, Drugs, etc.

SOUTHALL'S AERATED PIPERAZINE WATER.—This water has been introduced by Messrs. Southall Bros., at the suggestion of Dr. Saundby, as a remedy for gout, calculus, and other disorders dependent upon uric acid, of which substance piperazine or piperazidine, as it is variously called, is the most powerful known solvent. Each half-pint bottle contains 4 grains of piperazine and 5 grains of bicarbonate of potash. This combination makes a very agreeable drink and at the same time supplies a really medicinal dose of the drug. Piperazine is a substance prepared from the testicles and prostatic glands of young bulls and stallions, and is

* The Medical Annual and Practitioner's Index. 1892. Ninth year. John Wright & Co., Bristol.

nearly allied to spermine, the base found in Brown-Séquard's Elixir. Hoffman regards it as diethyl-endiamin with the formula



regarded as still doubtful. Its value as a solvent of uric acid however has been placed beyond doubt by the researches of Biesenthal and Schmidt, Brik, Ebstein, and others, while it is quite free from ill effects even in large doses. About a pint and a half of the water should be taken daily.

FAIRCHILD'S GLYCERINUM PEPTICUM — We have received a specimen bottle of Glycerinum Pepticum (Fairchild), a product recently introduced into this country. Glycerinum Pepticum is said to be an extremely active form of the peptic secretion of the glands of the pig's stomach, and possesses every requisite of a concentrated solution of pepsin. Twelve minims of this solution are said to completely convert 2,500 grains of finely comminuted coagulated egg albumen into soluble albumoses and peptones. It contains no alcohol or antiseptics, and is most economical for dispensing.

New Books, etc., Received.

Pye's Surgical Handicraft. Edited by T. H. R. CROWLE, F.R.C.S.
Bristol: Wright and Co.
The Medical Annual. 1892. Bristol: Wright and Co.
The Dietetic Value of Bread. By JOHN GOODFELLOW, F.R.M.S. London:
Macmillan and Co.
First Number, February, 1892, of the International Medical Magazine, a
monthly devoted to Medical and Surgical Science. Edited by JUDSON
DALAND, M.D. Philadelphia: J. B. Lippincott Company.

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THE
BIRMINGHAM MEDICAL REVIEW.

MAY, 1892.

ORIGINAL COMMUNICATIONS.

THE INGLEBY LECTURES
ON
THE CONDITION OF THE VASCULAR SYSTEM
IN ANÆMIC DEBILITY.

Delivered at the Queen's College, Birmingham.

BY ARTHUR FOXWELL, M.A., M.D. CANTAB., F.R.C.P.,
PHYSICIAN TO THE QUEEN'S HOSPITAL, BIRMINGHAM.

Mr. Dean and Gentlemen,

It is fitting that I should first speak in pious remembrance of Dr. John Tomlinson Ingleby, the great obstetric physician who served this College so nobly and in whose honour we are met here to-day. The tale of his life is briefly this:—Born at Cheadle in Staffordshire on March 7th, 1794—one year after the death of John Hunter—he had a good preliminary education, for five years thereafter was apprenticed to Mr. Bourne, of the same town, and at the end of this period pursued his studies in London and Edinburgh.

In May, 1816, he settled in Birmingham as a general practitioner, and in August of that year was appointed Surgeon to the Dispensary in succession to Mr. Grainger. When, through the astonishing zeal of Mr. Sands Cox, this school was first formed in 1828, Mr. Ingleby was chosen to lecture on Midwifery; and when, in 1834, through the public spirit of Mr. Sands Cox and

Dr. James Johnstone, our school was inaugurated afresh in the permanent building we are so soon to leave, Mr. Ingleby was again elected Lecturer on Midwifery. At this time each lecturer defrayed a portion of the expenses incurred in the delivery of his course and received no emolument, but in 1836 this variable amount was transmuted to a fixed payment by the lecturer, which in the case of Mr. Ingleby was £14 yearly. He lectured at a quarter to eight on the first five mornings of the week, his course consisting of sixty lectures. This post he held till his death, but in 1838 his increasing practice obliged him to petition for assistance, and in 1839 Dr. Berry was appointed to help him. In 1829 he was chosen surgeon to the Asylum for Magdalens, a position he resigned in 1843, having previously, in 1840, left the Dispensary of which he was then Senior Surgeon.

In 1832 he published his masterly treatise on "Uterine Hæmorrhage," which was at once acknowledged to be the most complete and comprehensive essay on the subject in the English tongue. A few years later, 1837, came "Facts and Cases in Obstetric Medicine," dedicated to the students who had attended his Lectures since the commencement of the school.*

These two works obtained for him a European reputation and through them he was made M.D. of Heidelberg and F.R.C.S. of Edinburgh. Both these volumes, which I show you here, bear unmistakably, even to the superficial reader, the impress of a master. The language approaches that peculiar character which we so greatly love in Trousseau and Watson. It is not eloquent in the usual acceptation of the term, there is no profuse verbiage nor resounding phrase; but there is something better. Dr. Ingleby's words are well chosen and to the point; his language is concise and yet not cramped; it reminds one of the placid leisure of the study arm-chair where each sentence is lovingly thought out with the aim, not of thrusting upon you much knowledge, but rather of putting what he has to give you

* I have since discovered several able articles of his in the *Edinburgh Medical and Surgical Journal* 1835-1840, which have the further interest to us of being admirably illustrated by Mr. Alfred Baker.

in the best possible dress, and yet you seem ever pervaded with the calm reticence of much learning and keen observation. It is in the relation of cases where he appears to most advantage. These he places before you with such simple directness, such calm unexcited realism, the salient features alone being sketched in, that you seem to be at the bedside of his patient listening to his exposition rather than reading it from a sixty year old book. In a word, his writings live. Such style as his seems almost a lost art now-a-days. I know not whether it be that the wonderful development of scientific knowledge has gone far ahead of the growth of language, but the writer of to-day is ever pressed down by his wealth of facts, he fails to marshal them into an organic whole, but satisfies himself with their bare repetition, resting well content if he can but contrive to put them all down with no single omission. He forgets that six facts told memorably are worth far more to the world than sixty put down with vague incoherence. For the six the reader will bless him with keen animation, but the sixty he will mostly skip with weary annoyance.

In Birmingham medicine, Dr. Ingleby made two innovations. From the time he was appointed Lecturer in the School, he devoted himself to the study of Midwifery, and was the first specialist in Obstetric Medicine in this city. Secondly, in the winter of 1840-41, he gave a course of lectures to the practitioners of the district, which we should now designate "Post Graduate." As a lecturer, a contemporary speaks thus of him—"He was neither eloquent nor fluent, but always in earnest and he treated his subject with the skill of a master; he had no learned speech, but he used good Saxon words with a taste and precision which riveted the attention of his class. In description and detail few could excel him. In all respects he was an accomplished teacher and not a little of the reputation of Queen's College is due to his occupancy of its Midwifery chair."

As an obstetric physician, he was without a rival in the provinces, and more than one eminent London specialist sent to him patients for his opinion. His fame, though somewhat slow in

coming, was very great. During his last years he may be said to have spent the whole of his days amongst his patients. He had many long journeys, and in his rooms saw patients from afar. Though eminently successful in the conduct of his cases, he was almost timid in his diagnosis and treatment. This was mainly due to a very nervous and excitable temperament, which he had inherited, a dangerous case depriving him of both sleep and appetite ; but it was also due in part to his keen sympathy, a sympathy which forced him to take the greatest interest in the social as well as medical condition of his patient.

Dr. Ingleby was of middle height and spare build. He had a peculiar and rather awkward gait, swinging his arms and legs in a strange and most characteristic manner. His eye, though small and restless, would often light up with a rare brightness and intelligence, and his expression was kind and gentle. His character was one of singular amiability and affectionate domesticity. In religion he was an Orthodox Churchman, and his piety was fervent and sincere. His professional conduct was straightforward, simple, and free from all arts and devices. In consultation he was unassuming and deferential almost to a fault, and never spoke with discourtesy or disparagement of a fellow practitioner. From first to last he worked at his profession with enthusiasm ; "at any time, by night or day," says the writer above quoted, "without fee or reward, he was ready to assist whomsoever might chance to require his services." And finally, in 1845, after vainly struggling for two years against failing health he dies of atonic gout, in the fifty-second year of his age, a martyr to the art he loved so well.

Dr. Ingleby's only son—Charles Ingleby,—entered the Church and died in 1873. He left as a Trust to his Executors a large sum to be divided amongst various Charities and Institutions. In August, 1876, Mr. George Paulson Wragge, a Birmingham Solicitor, the sole surviving executor, gave, out of this Trust, £2000, "to establish in connection with this College, The Ingleby Lectures and Scholarships for promoting the advancement of Obstetric Medicine and Surgery, including the Diseases

of Women and Children, being branches of Medical Science in which Dr. John Tomlinson Ingleby, the father of the said testator, Charles Ingleby, acquired considerable reputation."

To this honourable post, thus created, the Council of Queen's College have thought it good to appoint me ; and for this high appreciation of my merit I thank them most heartily. That you will approve of their choice is my earnest hope, but I am conscious that this hope can be realized only by the generous leniency of your judgment ; for the imperfections of the work I am about to submit to you are great and numerous.

A very large proportion of the adult population of England, indeed, in a great city such as this I would say almost one half, have an organisation incapable of living at the high rate of pressure by which the material success of the capital-lacking individual can be alone attained in these days. Some are wise enough to perceive this ; forego their success and retain their modicum of health. Others are not so far-seeing, but fretfully attempt to keep pace with their stronger neighbours ; but the result is a succession of arduous leaps instead of a steady running along life's road, till by degrees, the leaps get smaller and smaller, ending finally in an utter breakdown, from which oftentimes there is no complete rallying, and the rest of life is one of peevish invalidism, or, at best, but one of senile energy.

To most of us however it is not given to choose the amount of work we shall perform ; unfortunately, we find ourselves set labour beyond our strength before we are aware of the weakness of that strength. When we discover our weakness we have but Hobson's choice remaining to us, either to fall out of rank altogether and begin life afresh, or else to continue the uphill struggle against high pressure with an organisation fitted for low pressure exertion only. To impress upon us disciples of medicine the manifest unwisdom of this course is no more difficult than it would be to explain to an engineer the folly of giving a low pressure engine high pressure work to perform. But with the laity it is far different ; to women, young people, and uninstructed males I can understand even the mechanical

engineer having difficulty in explaining the dangerous madness of using a low pressure engine for high pressure work; and if so, can we wonder that the best instructed and best balanced laic minds, with the intensity of necessitous desire obscuring their keenness of vision, should fail to be convinced by us, who are the engineers of their frail humanity, that its frailty is incapable of high pressure action? *Hinc illæ lachrymæ amicorum* over lives prematurely blighted; over lives broken down and finished when they should but have reached their prime. Hence also the unaccountable perversion to peevish irritability of some temper previously well under its owner's control. Hence the sudden outbursts of puny anger over the merest of trifles which go so far to embitter and alienate domestic love. Hence the half mad rushings to excess in tea and alcohol and various other stimulants with which the poor debilitated one still trusts to bolster up his broken strength a little longer. Hence, later on, when the fight is recognised as hopeless, the fatal indulgences in the various nepenthes which help one to forget the misery of chronic invalidism—the consciousness of never being able again to do a good day's work. As with the breadwinner so is it with the housewife, for her duties to her mind appear equally imperious and exacting. So is it too with the mere pleasure seeker who often drags a body more fit for bed than dancing to a weary rout.

With children another evil, that of ignorance and fatal unconcern for health, which they consider to be the care of their parents, is perhaps the chief cause of the overstrain, which they often with utter needlessness put upon their constitutions. And this at a time when these constitutions are developing most rapidly, and therefore require much husbanding of energy. Again, we have the too ready return to work after the exhaustion of a severe illness, such as typhoid or influenza, when nutrition is but feebly reasserting itself and, occupied as it is with repairing past ravages, is unable to provide pabulum for fresh exertion.

It is to the more certain recognition of the early stages of

these anæmic and debilitated states that I wish to speak to you, for *facilis descensus Avernî*, and it is rarely, except in the chlorosis of girls that your help is sought for the fundamental condition itself in the first instance, but rather for some trivial symptoms springing out of it, a slight gastric upset, or tracheal catarrh.

A few days' rest, with appropriate diet and medicine, sets this trouble right and you tell your patient he may return to work. He does so, but in two or three days more comes to you worn out and with a subacute recurrence of the previous malady, he is moreover greatly depressed and perchance nourishes against you a secret grudge for having allowed him too soon to return to his labour. There are few positions more humiliating to the medical man than this, that through a well meant endeavour to get his patient quickly off the sick list he has brought upon him a tedious and wearisome illness.

This happens not seldom, the patient leading the quiet invalid life at home seems well, and the doctor is perhaps too keenly sensitive to the reproach of keeping him too long on his books ; or weakly, against his better judgment, gives way to the earnest representation of the necessity for return to work. Seldom, indeed, is the need of a strong will more urgently required by a medical man.

There is nothing more strengthening to the medical will than a complete certainty of diagnosis. How many of us would be able to withstand the piteous pleadings for solid food of the convalescent typhoid were our knowledge of the terrible danger of giving way, wanting in pathological precision, and doubt existed in our minds as to the *post* or *propter* of the sad result of taking such nutriment. Almost, if not quite, similar certainty of diagnosis may be arrived at in cases of anæmia. I admit this certainty cannot be easily learnt from a text book as is the case with typhoid ; but a few years careful and persistent clinical work will give it to us and enable us to speak as dogmatically to the debilitated patient as the young house physician does to the convalescent from typhoid. Indeed, in the case of chlorosis,

the diagnosis of the patient's state is almost as simple as in that of typhoid fever; yet how comparatively seldom do we see chlorotics sternly forbidden to overtax their strength in the various ways that many girls, from emulation, thoughtlessness and sad ignorance almost daily do !

With adults and amongst the poor it may be impossible for us to have our wishes as to the conduct of their lives carried out, but with adolescents we can plead no such excuse in the middle and upper ranks of life. Here we can command, and it is our duty to do so with calm decisiveness, so that the hopelessness of appeal or persuasion may be made quite evident. Boys will want to play football, girls tennis, and both will vehemently object to a daily siesta. But we must have firmly made up our minds beforehand on all such points, and remain steadfast and immovable when once our fiat has gone forth.

In the elucidation of this state I have set myself in these lectures merely its diagnosis as regards the vascular system with its appropriate treatment, and even of the vascular system I can refer only to those points which have more especially come under my own observation.

I will first consider the condition of the blood itself. The quality of the plasma depends upon the nature of the nutrient derived from the alimentary canal; either directly by means of the intestinal capillaries, or indirectly through the lacteals. This in its turn is governed partly by the food, but more especially by the capacity of the intestinal mucous membrane to absorb and modify the food. It is this membrane which absorbs peptones, turns them again into albumins, and, as albumins, passes them on to the blood. It is its villi which absorb fats and pass them on to the lacteals, and which change the small quantities of soluble soaps and fatty acids into neutral fats before so handing them on. Nothing, indeed, seems to be taken up by the blood or lymph through the mere physical forces of endosmosis, diffusion and filtration alone: the cell protoplasm of the mucous membrane modifies all varieties of absorption. Even on many true solutions it exercises a selecting

power and takes up some (grape sugar, e.g.), which diffuse with difficulty more rapidly than others (as sodic sulphate), which have a far greater diffusing power ; while others (some soluble pigments), it refuses to take up at all.

Practically then we may say that for the maintenance of a healthy plasma the integrity of the intestinal mucous membrane is absolutely essential. And when we remember that this same membrane is chiefly instrumental in the due preparation of the food for absorption, the high importance we must place on its functional health stands out still more plainly. For, from the plasma spring all the more complex elements of the body, the red and white corpuscles amongst them, and hence it is the ultimate foundation from which all our tissues are built.

The corpuscles, both red and white, are formed during extra-uterine life, chiefly if not altogether, in the red marrow of bone. This red marrow is found in the bones of the skull, in those of the trunk and in the extremities of the long bones. The red and white have independent origin, the antecedents of the red are called erythroblasts, of the white leucoblasts.

This red marrow consists of fat granules imbedded in the meshes of a lymphatic tissue : through it run numerous vessels ; the arterioles are fewer and of much smaller calibre than the venules ; the circulation in these latter is therefore slow, and hence plenty of time is allowed for the absorption of nutriment from the plasma contained in them. It is in these venules that the red corpuscles are developed ; they appear to have but ill-defined walls, so that passage of corpuscles from them into the tissues and *vice versa* is easily made. The fully formed red corpuscles occupy the axial stream of these venules ; at their peripheries are erythroblasts containing very little hæmoglobin, but having a large spherical nucleus and a homogeneous, or but slightly granular protoplasm. Between these erythroblasts and the fully formed red corpuscles are many gradations of cells, all of which are actively dividing. The leucoblasts differ from the erythroblasts in being altogether without colour, in their central nucleus being small and of variable form, and in possessing many nucleoli.

Both erythro- and leucoblasts have amœboid movements, but these are much more active in the leucoblasts. The leucoblasts are outside the vessels, in the marrow parenchyma, and enter the blood stream by diapedesis.

The parenchyma of the red marrow consists of a delicate lymphatic tissue containing many fat cells in its meshes. In anæmia these fat cells diminish greatly, or even vanish, their places being taken by leucocytes. The venules also dilate, lessening the space occupied by the parenchyma; in extreme cases this ceasing to be visible, the adjacent walls of the venules touching each other. Inside the venules the axial stream of fully formed red corpuscles becomes a mere streak, and the widened vessels are filled with erythroblasts, and outside them, leucoblasts in every stage of division.

In this way the two great changes in the blood, which are characteristic of all varieties of anæmia are brought about. A functional or organic defect in the intestinal mucous membrane diminishes the proportion of albuminates in the plasma; and, probably as a result of this, a deterioration in the functional activity of the red marrow impoverishes the red corpuscles and thus lowers the oxygenating power of the blood.

I think it only fair to say a few words concerning the spleen, which formerly held so high a position as a source of red corpuscles. That it does so form them during intra uterine life to a very considerable extent is still acknowledged, but this function entirely, or almost entirely, ceases with the birth of the child. Throughout life it helps to produce white corpuscles, and throughout life it, with the gastro-intestinal mucous membrane, is the most active seat under normal circumstances of the destruction of red corpuscles. Yet it does not seem to be one of the great organs of life, its removal with impunity indicates this. Sir Spencer Wells' well-known case of splenectomy is perhaps the best evidence of this as we have so great an authority as Dr. Dreschfeld on the after condition of the blood. Very briefly it is this: Sir Spencer Wells removed a very large spleen from a young married lady of 21. This lady had had ague at

the age of 4, when her spleen was noted to be large, and she was afterwards anæmic, but on coming to England two years later she soon became strong and healthy, and married at 18. Early in her first pregnancy her medical attendant noted that her spleen was increased in size, but this was probably no new thing as the patient had been cognisant of a lump in her left side all her life. After her confinement, the spleen grew far larger and she became anæmic, but her blood was healthy, except perhaps for a slight increase in the white corpuscles. Suddenly a severe intra-splenic hæmorrhage took place, and the spleen was removed. Recovery was good, no bad symptom appeared, and a year later Dr. Dreschfeld examined her blood, and reported that it was perfectly healthy, except that the hæmoglobin was only 75 to 80 per cent of its normal amount.

The special and diagnostic blood changes which occur in individual varieties of anæmia are best seen by consideration of the following analyses which I have collated from the records of the Queen's Hospital, with the kind permission of my colleagues.

Case 1. A girl with Chlorosis and ? Gastric Ulcer.

1st Report.	H.B.* 28 p. c. Red Cs. 33 p. c. White Cs. 100 p. c.	2nd Report.	H.B. 45 p. c. Red Cs. 90 p. c. White Cs. 100 p. c.
3rd Report.	H.B. 65 p. c. Red Cs. 118 p. c. White Cs. 100 p. c.	4th Report.	H.B. 60 p. c. Red Cs. 96 p. c. White Cs. 100 p. c.

Case 2.—A girl with Simple Anæmia and ? Cerebral Tumour.

1st Report.	H.B. 30 p. c. Red Cs. 100 p. c. White Cs. 100 p. c.	2nd Report.	H.B. 50 p. c. Red Cs. 90 p. c. White Cs. 100 p. c.
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Case 3.—A child with Simple Anæmia after Typhoid.

H.B. 60 p. c.
Red Cs. 90 p. c.
White Cs. 100 p. c.

Case 4.—Simple Anæmia after Childbirth.

1st Report.	H.B. 20 p. c. Red Cs. 38 p. c. White Cs. 100 p. c.	2nd Report.	H.B. 20 p. c. Red Cs. 54 p. c. White Cs. 100 p. c.
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* Stands for Hæmoglobin.

Case 5.—A man with Chronic Nephritis, Mitral Disease, and persistent slight Hæmaturia.

1st Report.	H.B. 60 p. c.	2nd Report.	H.B. 50 p. c.
	Red Cs. 94 p. c.		Red Cs. 90 p. c.
	White Cs. 100 p. c.		White Cs. 100 p. c.

Case 6.—Lad with Hæmorrhagic Anæmia from Bladder Tumour.

1st Report.	H.B. 30 p. c.	† 2nd Report.	H.B. 28 p. c.
	Red Cs. 49·2 p. c.		Red Cs. 48 p. c.
	White Cs. 75 p. c.		White Cs. 100 p. c.
	† 3rd Report.	H.B. 30 p. c.	
		Red Cs. 72 p. c.	
		White Cs. 100 p. c.	

Case 7.—A man with Scurvy.

H.B. 30 p. c.
Red Cs. 84 p. c.
White Cs. 100 p. c.

Case 8.—A man with Alcoholic Cirrhosis of the Liver and Strumous Glands in the neck.

H.B. 30 p. c.
Red Cs. 84 p. c.
White Cs. 100 p. c.

Case 9.—A girl with Pernicious Anæmia; Death; slight Enlargement of Spleen; Pyrexia towards end.

H.B. not estimated.
Red Cs. 17 p. c.
White Cs. 100 p. c.

Case 10.—Man with Pernicious Anæmia and Alcoholic Cirrhosis of the Liver; Spleen not enlarged; slight Pyrexia; 98·5 to 99·5.

1st Report.	H.B. not estimated.	2nd Report.	H.B. not estimated.
	Red Cs. 45 p. c.		Red Cs. 108 p. c.
	White Cs. 100 p. c.		White Cs. 100 p. c.
3rd Report.	H.B. 45 p. c.	4th Report.	H.B. 39 p. c.
	Red Cs. 44 p. c.		Red Cs. 43 p. c.
	White Cs. 100 p. c.		White Cs. 100 p. c.
5th Report.	H.B. not estimated.	6th Report.	H.B. 55 p. c.
	Red Cs. 44 p. c.		Red Cs. 60 p. c.
	White Cs. 100 p. c.		White Cs. 100 p. c.

† After removal of tumour.

The Red Cs. were always variable in shape ; many were megalocytes, some granular, and some had nuclei. This patient went home much improved. His treatment being chiefly iron and cod-liver oil.

Case 11.—A woman, age 30, with a greatly Enlarged Spleen and slightly Enlarged Liver ; ? due to Syphilis.

H.B. 23 p. c.

Red Cs. 53 p. c.

White Cs. 100 p. c.

Case 12.—A woman, age 50, with Bronchitis and Anæmia.

1st Report. H.B. 55 p. c.

Red Cs. 85 p. c.

White Cs. 100 p. c.

2nd Report. H.B. 78 p. c.

Red Cs. not estimated.

White Cs. „ „

These cases exemplify very fairly the main changes in the corpuscles, which arise in the various forms of anæmia. I much regret that I am unable to furnish you with the results of examinations of the plasma, so that the analyses might have been complete.

All those which we may describe as Simple or Symptomatic anæmias have a striking uniformity. In all the number of white cells is normal ; in all the number of red cells and the amount of hæmoglobin is reduced, the latter to a much greater extent than the former ; hence the oxygenating power of each red cell must be lessened as well as the number of these. Moreover, Cases 4 and 6 shew that as improvement takes place, this is seen far more quickly in the number of the red cells than in the amount of hæmoglobin. In other words, it is easier for the system to produce a larger number of imperfect cells than a smaller number of higher oxygenating capacity. This is what we should expect, as it is only an illustration that quality is ever rarer and more difficult of production than quantity. Case 5 shews the same thing reversed, as the blood deteriorates the quality of the red cells decreases far quicker than their number.

Case 10,—if we omit Report No. 2, in which there is probably an error—is a fair example of the state of the corpuscles in pernicious anæmia. The white cells remain normal, the red lessen greatly in number ; but the amount of decrease in hæmo-

globin does not do more than keep pace with this lessening, in some instances indeed, it does not even decrease as much as this, and hence the hæmoglobin capacity of each corpuscle is greater than normal; but, probably, never its oxygenating powers; for as this case also shews, many of the corpuscles were much increased in size, and therefore the hæmoglobin would exist in them in an abnormally diluted condition; hence, though the surface of the cell would be larger, the amount of hæmoglobin which it could expose to oxidising and deoxidising influences would be no greater than normal. Case 10 also shews some of the alterations which the red cells undergo in pernicious anæmia—their nucleation, granular protoplasm, and great variations in shape—all of which changes recall to our mind their embryonic state as erythroblasts. Further, Case 9 shews the extreme diminution in the number of the red cells which may occur before death.

This brings us to the consideration of the nature of the difference which exists between pernicious anæmia and all other forms. This difference is usually thus stated: the essential cause in pernicious anæmia is an increased destruction of the red corpuscles, their production remaining normal, or even rising above normal; whereas, in all ordinary anæmias, the essential cause is diminished production. In the one case we should have an extra activity of the blood-destroying organs, in the other a feeble activity of those organs which make the blood. As the blood-makers and blood-destroyers are not thought to be the same organs, this difference is evidently a great and radical one.

But does such a difference actually exist? Does the theory of such fully explain the conditions? Dr. Hunter tells us that in pernicious anæmia there is an excess of iron found in the liver and spleen, hence, he says, these organs break up an excessive number of corpuscles to obtain the excess of hæmoglobin, which produces this excess of iron. But, on the same reasoning, there should *normally* be an accumulation of iron found wherever corpuscles are disintegrated. Let us confine ourselves

to the liver. This organ takes the hæmoglobin set free from the red corpuscles, and produces bile pigment with it; but bile pigment has no iron, so that all the iron which was in the hæmoglobin must be left in the liver. It is true a small proportion finds its way into the bile as phosphate of iron, but this forms only a small fraction of the total obtained from the hæmoglobin. What becomes of the rest, and, moreover, of that which is absorbed from the food and passed on to the liver in the portal circulation? For iron is found in the plasma of the portal vein, but not in that of the hepatic.

It is evident that in health, at any rate, this cannot remain in the liver, or else this organ would in the aged become loaded with iron. Dr. Delépine has suggested that the liver re-forms it into hæmoglobin to produce new red corpuscles, forwarding it, I suppose, to the bone-marrow for this purpose.* Whatever happens to it, it cannot stay in the liver; this organ must have a means of disposing of it of which we are ignorant. Now should this unknown function of the liver be but feebly performed, we should at once have, as a result, an increase of iron remaining in the liver. Also, it is easy to conceive that as the accumulation occurred, the bile-forming function would excrete more into the bile as phosphate.† For this, being a procedure of disintegration, would be far easier of performance than the rebuilding up into hæmoglobin. Should, then, this hepatic hæmogenetic function grow feeble, we have an explanation of the excess of iron found in the liver in pernicious anæmia. In all other anæmias we have evidence of feebleness of hæmogenesis; but in them the liver seems to escape. Is it not natural to assume that as the disease takes on a severer type—becomes pernicious—the liver also fails in its hæmogenetic powers?

* For simplicity's sake one speaks of iron only, but iron is found in the liver cells in union with nuclein and a proteid, and it is some such compound, if not the unstable thing hæmoglobin itself, which is sent to the bone marrow, so that this is deficient, not only in iron, but in all the constituents of hæmoglobin.

† Dr. Hunter has found an excess of iron in the urine in cases of pernicious anæmia.

Dr. Hunter has shewn us that the liver undergoes actual organic disease in pernicious anæmia, for he has found the central zone of the lobules to be the subject of fatty degeneration. Further, he has shewn that the iron, which in health is only found in the leucocytes of the branches of the portal vein inside the liver, in pernicious anæmia is also found in the cells of the outer portions of the hepatic lobules. This would seem to indicate that the liver took up the iron, and made the attempt to transform it into hæmoglobin, but as the central zone was diseased and unable to assist, some of the iron had to remain in the still functional cells of the outer zone.

If we take this view of the matter, then pernicious anæmia merely becomes a very severe form of anæmia generally, but no distinct disease. It becomes easy to understand how other forms may gradually become pernicious, and how pernicious anæmia itself may recover by gradually passing into milder forms.

You will say, Surely the condition of the blood, the marked difference in the relation of the red corpuscles to the hæmoglobin, and the changes in the corpuscles themselves are diagnostic marks indicating a fundamental divergence. But even this is not so irreconcilable a state as one is apt to imagine. I have at this present time a young girl under my care (Case 1) in whom the red corpuscles are but 33 per cent., whilst the hæmoglobin is as much as 28 per cent.; yet there is no doubt that she is simply a chlorotic, with, it is true, symptoms of gastric ulcer. She shews no evidence of dangerous illness nor extreme feebleness; moreover, she is rapidly improving under Blaud's pills.* The corpuscles may be most variable in size and shape in pernicious anæmia, but they are by no means normal in these particulars in other anæmias; chlorosis is recognised as having a partiality for microcytes. It is only to be expected that the cells should most depart from their normal type in the severest

* Since writing the above the further Reports have been obtained. The girl is convalescent, much improved in colour, and with no murmurs, and has been discharged.

form of the disease. Indeed, clinically, we are continually finding transition forms which more and more bridge the gap that still separates pernicious from simple anæmia. Often it is hard to tell the one from the other, and cases which begin with all the signs and symptoms of simple anæmia end fatally. Moreover, if we take a case of the most fatal and another of the mildest type of anæmia, these two certainly do not differ as much as a chronic tuberculous gland disease of the neck does from an acute miliary tuberculosis.

The Œdema of anæmia is but ill understood; perhaps the least so of all forms of œdema, none of which are easy to explain. Its possible causes are: 1. A morbid change in the blood. 2. A morbid change in the capillary endothelium. 3. Deficient action of the heart.

The blood in anæmia is often unduly dilute; but mere dilution will not cause œdema. For Dr. Saundby tells us in his Lectures on Bright's Disease that Rehder experimented on five healthy persons for thirty two days, and always found that they excreted by the kidneys 76·4 p. c. of the fluid imbibed however great the quantity of that might be, that is, however much their blood might be diluted; and in no case did œdema result, the lungs and skin no doubt sharing the excess of excretion with the kidneys. Further, Cohnheim and Lichtheim in numerous experiments on animals diluted the blood till its dried residue was only 11, 8, and even 4 p. c., instead of the normal 20 to 24, yet no anasarca resulted. Lastly, in a case shortly to be published, I injected 12 pints of water into the rectum of a man suffering from general anasarca and epileptoid coma due to parenchymatous nephritis. The water was retained and the anasarca rapidly and almost completely disappeared. Here the injection of water and consequent dilution of the blood evidently aided the removal of the œdema instead of increasing it.

Anæmic blood has a smaller proportion of albumen than healthy blood, and this may have some effect in producing œdema. Immermann points out that the volume of the blood

depends mainly upon the amount of albumen in the plasma, as albumen has the power to absorb water and incorporate it. Hence, the less albumen it contains, the less water will the blood take up from the tissues by osmosis, and therefore the water will tend to stagnate in the tissues as œdema. Becquerel and Rodier go so far as to state that dropsy must ensue whenever the proportion of albumen in the blood has fallen to from 8 to 6 p. c. I need not say that this is one of those precise chemical statements whose very exactness proclaims its untruthfulness. The body is no mere physical machine where we can trace the effect of a single cause uncomplicated by adjuvants or deterrents. We may grant that lack of albumen in the blood plays its share in the production of œdema, but it is only a share, for not seldom we find œdema absent when albumen is in very small quantity, while in other cases œdema is present though the amount of albumen is almost normal.

The condition of the corpuscles in anæmia can scarcely have any direct action in the causation of œdema as this varies so greatly in the different forms of anæmia, whereas the tendency to œdema is common to all, and but seldom varies directly with state of the corpuscles.

We may conclude therefore that the only morbid change in the blood which can directly cause œdema is its deficiency in albumen. Of the relative importance of this cause we know little, but I would remark that it is probably the drain of albumen from the blood which produces œdema in parenchymatous nephritis, and in some instances of severe diarrhœa.

A still more difficult question is the influence of the capillary endothelium on œdema. We can easily understand that the impoverished blood and the enfeebled circulation of anæmia may seriously deteriorate the condition of the endothelial cells, but morbid histology refuses to give us any proof that this does happen. Even in the case of inflammatory exudation I believe no change has been discovered by the microscope. I do not think any pathologist has described changes in the capillary

endothelium as being the result of an anæmic state of the blood ; but it may well be that an important deterioration of function may occur in so delicate a tissue without leaving any trace detectable by the microscope. Indeed we know that changes in this endothelium will produce œdema, for we can observe this actually taking place in the processes of inflammation. But the changes brought about by anæmia must be very different to those arising from inflammation, for the character of the two exudations differs widely. The œdema of anæmia contains far less proteid, and especially many fewer white cells than does that of inflammation. [This difference between an inflammatory and a mere dropsical effusion sometimes proves of diagnostic value. For instance, the inflammatory fluid of peritonitis has a specific gravity of 1018 or more, while that of hepatic ascites is only 1010 and less ; the ascitic fluid will not coagulate spontaneously, but the inflammatory one will. Hence if in a case of abdominal effusion we suspect chronic or subacute attacks of peritonitis are playing a part an analysis of the fluid will greatly help our diagnosis.] Inflammatory fluid can be exuded under considerable pressure, can even be forced into already tensely distended tissues ; it seems to occur quite independently of tension ; but the anasarca of anæmia is soft and pits easily. Moreover, anæmic œdema can be removed without any improvement in the blood, by merely changing the position of the part : position has comparatively little influence on inflammatory effusion. Now if the condition of the blood produced a morbid change in the capillary walls and this morbid change induces œdema, why should this œdema vanish when no improvement has occurred in the blood, and therefore, presumably, no improvement taken place in the capillary wall. It seems evident that the capillary wall must play a smaller part, if any, in the production of anæmic œdema than in that of inflammation.

But we must remember that the capillary wall, even in health, greatly modifies the nature of the transudation which occurs through it. For instance, serum-globulin diffuses through a dead

membrane much more slowly than does serum-albumen ; yet the proportion of these two substances in the fluid exuded into the lymph spaces outside the capillaries is the same as in the blood within these vessels. Another important fact shewing that œdema is not only a filtration is this :—The constitution of all non-inflammatory exudations is almost the same, except in one particular, viz., the amount of proteid they contain : that is, as regards mere physical filtration (salts, etc.) there is no change ; but when it comes to osmosis, then the living element enters in. The proportion of proteid in hydrothorax is 2·8 per cent., and in ascites 1·6 per cent., and in œdema ·35 per cent. only. In the two former, the osmosis has to take place through two membranes, viz. : the capillary endothelium and that of the pleura or peritoneum, and this double osmosis greatly increases the proportion of proteid, and, what is stranger, the pleural endothelium is much more powerful in this respect than the peritoneal. Hence, we conclude that the endothelium modifies the character of the effusion, but does not itself produce it.

There remains the third cause—deficient cardiac action. That such does exist in anæmia is generally admitted now. The breathlessness on exertion seems to prove this, though Dr. Ingleby quotes so great an authority as Andral as endeavouring to shew that this breathlessness arose because the blood in anæmia being diminished in quantity, the lungs supplied this blood with more oxygen than was needed, the super-oxygenated blood producing disturbances which induced breathlessness ! A strange theory to us now-a-day ! It is only in very severe cases that anæmic subjects become œdematous when lying in bed. Generally, at first, at all events, the œdema occurs in the feet and legs, and is worst at night ; on rising in the morning it is often gone, and is always much less. What has produced this improvement ? The quality of the blood has undergone no change, nor have the tissues external to the capillaries altered. We cannot, therefore, understand why the nutrition of the capillary endothelium should have improved. But there has been a great change in the mechanical conditions

of the circulation ; before, the blood had to be pumped up some 4-ft. from the feet to the heart, now, in the supine position, it has merely to be driven along a level way. This is the great, in fact the only difference that has arisen. It is true that the improved circulation may benefit the nutrition of the capillary endothelium by supplying it with a larger quantity of blood. But it will be an increase in quantity, not quality, and variations in mere quantity do not seem to have much power in inducing or removing œdema. No doubt the comparative stagnation of blood which has accompanied and preceded the œdema has had an injurious effect upon the endothelium as well as upon the other tissues situated in the œdematous region, and this injurious effect may have aided the œdema. But on the other hand, this morbid change in the endothelium may be one, which tends to *prevent* exudation, and so hinder the production of œdema, rather than cause it.

The whole question of anæmic œdema may be summed up thus :—In the mild and ordinary form, which is usually confined to the legs, cardiac debility, which under the influence of gravity allows stagnation of the venous blood, is the chief, if not sole cause ; in the severer forms which arise whilst the patient is lying supine, where exudation occurs in various parts of the body, including the large serous cavities, the plasma's deficiency of albumen is no doubt an additional cause, and the deterioration of the capillary wall may also to some extent assist, though this last is mostly a matter of conjecture.

INJURIES TO THE EYE AND ADJACENT PARTS.*

BY HENRY EALES.

Gentlemen,

It is with some diffidence that I have decided to read a paper which will be wanting in all the elements of a learned discourse, and deal simply with practical matters, but I feel that a learned ophthalmological treatise would be very uninteresting to the members of this Society; and while believing that most of our speciality is wanting in interest to the body of the Profession, I feel that the subject of injuries, being conditions that any member may at any moment be brought face to face with, is one that all may not only feel some interest in, but may have experience to relate, or criticism to offer; hence my choice of subject.

Wounds of Lid.—First, I wish to say a few words about injuries to the eyelids, which are often damaged by wounds. In no part of the body do wounds heal better than here where the vascular supply is so good—indeed the same may be said of the whole of the face. Small wounds require nothing but a firm compress, but if large a silk or wire suture is the best means to obtain apposition; but the sutures should be ample in number and neatly applied; personally, even with the wire suture I employ the reef knot, as giving better and neater apposition than the twisted suture, which indeed often causes twisting of the flaps and want of neat apposition of the adjoining edges.

A form of injury, not uncommon, and which always excites my wonder, is that in which a person in suddenly stooping down catches the eyelid on some projecting point, as a hook or gas bracket, and completely tears the upper eyelid in two, making a vertical division through all the structures of the lid, probably about its middle, from the lid border to the extent of say half

* Paper read before the Midland Medical Society, February 24th, 1892.

an inch, and without even scratching the cornea—this I have seen many times. If the wound is well washed with a solution of 1 to 5000 perchloride of mercury, and neatly sutured on the skin surface, one suture being inserted into the ciliary border, and care taken that the edges here are in good apposition, the wound heals invariably by first intention, and no resulting deformity of the lid takes place; but great care should be taken that the two sides of the lid border are in good apposition. There is no necessity to suture the conjunctiva.

Another injury which is often seen and equally astonishing is that caused by a person in falling catching the lower lid in some projection and completely tearing away the whole lower lid border, from the outer commissure to the inner, where it remains hanging on by the tarsal ligament and small skin base; sometimes not only the ciliary border and cartilage are torn away, but also the skin below as far down as on a level with the orbital edge. These cases like the others heal without deformity if nicely sewn up.

Some twelve years ago I was called in by a medical man to see a patient of his who while on the Malvern Hills had fallen, catching the lid in some projecting stalk in the ground and tearing it. The wounded lid healed well, but the doctor was troubled by the presence of a small granulation tumour or warty growth as he thought at the inner canthus which he imagined would have to be excised, but before actually doing this desired me to see the case.

On examination I found the whole lower lid wanting in cilia and cartilage, except at the inner end, and here I found that the supposed warty growth was nothing more than the whole ciliary border with the cilia on it, shrunken up by its own elasticity into a small roundish projection and adherent to a cicatrix, while the lid border shewed a slight cicatrix along its whole edge, where the cartilage and cilia had been torn away. Instead of excising the tumour under chloroform I detached it from its surrounding cicatrix, and having freshened the whole margin of the lid I stretched it along it and stitched it in place, and though

the injury had been done six weeks obtained a most perfect and satisfactory restoration of the lid border though the operation was a tedious one to perform.

Occasionally, though not so often, the lower lid is torn away from the inner canthus instead of the outer by similar means. In this case usually the lid is ruptured a few mm. from the inner commissure, the rupture passing through the canaliculus about half way between the punctum lachrymale and the commissure. Here the difficulty is to restore the canaliculus; for while the punctum and outer end of the canaliculus are generally easily found on the detached lid flap, it is often very difficult, sometimes, in badly-torn wounds, impossible to find the inner end of the canaliculus; though generally with care, and if necessary by freshly cutting the inner end with scissors, it can be found. This done, before the lid is sutured I always pass a small piece of silver wire first through the inner or nasal end and down into the nose, and then bending the exposed end outwards insert it into the outer end of the canaliculus, and out through the punctum where I leave it projecting, this keeps the canaliculus patent; this done, the lid flap is brought into nice apposition, neatly sutured and a bandage applied. It will almost surely heal by first intention, and the result be satisfactory. Of this injury I have had some four or five experiences.

Blows.—I now wish to say a few words on the results of blows:

1. Taking the effects that are produced on the appendages and to the eye; indirect effects; 2. Those resulting to the eye itself.

Emphysema.—One of the commonest effects after the ordinary black eye, of which I shall not here deal, is emphysema of the lid and structures in the orbit.

It usually comes on suddenly while blowing the nose after a blow on the head, and sometimes not only do the eyelids become emphysematous, but the eye considerably proptosed as well. It is usually easily recognised, the air vesicles being seen under the skin of the lid; reminding one of the appearance produced by the mucous membrane of an inverted piece of intestine

as usually blown up in the dissecting room to show the sub-mucous tissue; the sub-cutaneous tissue of the lid being very lax; but failing this, it is easily recognised by touch, a peculiar crackling being felt on pinching up the skin.

It gets well in about forty-eight hours, and no treatment is necessary; but the patient must be warned to desist from blowing the nose for a few days.

Pulsating Proptosis.—Sometimes considerable proptosis arises from effusion of blood into the orbit, immediately after a blow, but to this I shall not allude further. A more serious proptosis is that coming on two or three days after a blow and daily increasing, until pulsation of the whole orbital contents takes place, and in some cases not only do the various orbital branches of the ophthalmic vein dilate into distinct swellings, more particularly the frontal and angular at the inner end of the eyebrow, but these swellings may possess a distinct thrill perceptible to touch, while with a stethoscope applied over the temple or inner end of the eyebrow, a distinct murmur synchronous with the pulse is heard, and the patient complains of a thrumming in the head with each heart beat.

This condition of pulsating exophthalmos is due to fracture of the base involving the cavernous sinus in which either thrombosis occurs, obstructing the venous return, and causing dilatation of all the orbital veins emptying into it, while to their contents the pulsations of the carotid artery in the sinus are transmitted, giving rise to the pulsating exophthalmos found, or else the carotid artery is opened in the sinus by a spicula of bone perforating it, when an aneurismal varix between the artery and sinus is produced.

All the symptoms, except the thrill, may be produced by thrombosis, but if thrill is also present, an aneurismal varix may be certainly diagnosed. If only thrombosis has occurred the proptosis will probably in time subside, but if an aneurismal varix is present as a rule the condition increases and persists, and such cases are transferred by us to the general surgeons for ligature of the carotid artery, the best means of effecting a

cure, though even this is not invariably successful, indeed ligature of the opposite carotid also after a short interval has been known to be ineffective. It is well to bear in mind that in consequence of the free communication between the cavernous sinuses of the two sides, the proptosis is often after a time found to affect the opposite eye also. In this condition there is often paralysis of all the nerves passing through the sinus, so that the proptosed eye loses all power of motion. A few such cases undergo spontaneous cure, or are cured by digital compression of the carotid artery without ligature, but only a very few have been recorded, one having been a case of my own, which some of you may remember, having been shewn by me at this Society in November, 1881. (See *Birmingham Medical Review*, January, 1882). It was a case of a miner, aged 17, who had his head severely crushed between two trollies down a coal mine. When seen five weeks later he had all the signs of arterial varix at the cavernous sinus, and I advised ligature of the carotid and was prepared to hand him over to the general surgeons; but as they were not agreed as to this procedure, I postponed handing him over, and determined to bring the case before the Birmingham Branch of the British Medical Association at their next meeting. In the interval, one morning the thrumming in his head suddenly ceased, and from that time the pulsating exophthalmos subsided. He had no treatment beyond Potassii Iodidum internally. In this case not only were all the nerves passing through the cavernous sinus paralysed, but the seventh also, and the eye was lost from glaucoma and intraocular hæmorrhage, in consequence of the interference to intraocular circulation, and ultimately became a shrivelled globe.

Injury to Optic Nerve.—Another, and not uncommon, result of blows on the head is blindness of one eye, following immediately on the injury, the blind eye presenting no evidence of structural lesion. The only thing noticed being that while the pupil re-acts to light thrown into the companion eye, no contraction takes place to light thrown into it. In such cases the optic disc, at first normal in appearance, at the end of five or six weeks begins to show evidence of atrophy, which progresses.

In these cases it has been found that there is a fracture at the optic foramen, sometimes the nerve being torn at the time of fracture, at others being merely compressed by effused blood. No treatment is of any avail to obtain recovery of sight. Of this condition I have seen several examples, perhaps a dozen. In some cases the loss of sight is not complete, and then the perimeter shows loss of a greater or less portion of the Field of Vision (F. V.)

I have myself seen one rare case in which, after a severe blow on the head, one eye became affected with pulsating exophthalmos, while the companion eye was blind from this injury to the optic nerve.

Some seven years ago a man consulted me with convergent strab. and failure of vision in both eyes, after a severe injury to the head. On examination I found the squint due to complete paralysis of both 6th nerves, causing paralysis of each external rectus, while the lost vision was due to atrophy of both optic nerves; on examining his F. V. with a perimeter I found he had bilateral temporal hemianopia: that is, the sight was deficient in each eye over the temporal or outer half of his F. V. Here no doubt there had been fracture of the base, with partial damage to each optic nerve, or to the optic tract from effusion of blood pressing on it, while the 6th nerves had also been affected. This is one of the few cases of bi-temporal hemianopia, a very rare condition, that I can recall having seen.

Injury to Motor Nerves—I would now in passing allude to injuries to the motor nerves of the eyeball, following injuries to the head, and let me say at once that paralysis of the 6th is by far the commonest, due to the long course of the 6th in the base of the skull, and its close proximity to the bone, passing as it does through a notch in the spheroid bone, and on the floor of cavernous sinus, while the other nerves pass through the outer fibrous wall, thus rendering it much more susceptible to damage from shocks transmitted to the base. Next to the 6th the small long 4th is most often affected, causing paralysis of the superior oblique, with resulting double vision, only in looking down below the horizontal line.

Before leaving this part of my subject, let me say that I have seen one case in which the malar bone was completely separated from the superior maxilla, at its articulation with that bone, and displaced backwards as the result of a blow. The case being that of a young person, probably the union of the two bones was not complete at the time of injury.

Rupture of Eyeball.—I now pass on to the direct effects of blows on the eyeball. The globe is often burst, the rupture usually occurring in the anterior part of the sclerotic, near the cornea, and parallel with it, where this coat is weakest, as in one case shewn (see page 243). In this injury there is often prolapse of both iris and ciliary processes into the wound, and the eye being usually lost from separation of its coats by hæmorrhage, should be excised, such eyes being potent in causing sympathetic ophthalmia in the other eye, if allowed to remain. Occasionally, the rupture is small and only the iris is prolapsed, when if it is excised, the wound heals well, and the eye may remain a good one.

Some eight years ago a lad was brought to me with such an injury, caused six days previously by bringing his eye in contact with a dog's nose, the dog suddenly jerking up his nose just as he was stooping down to fondle it. In this case the rupture was above and slightly out, and the iris prolapsed into the wound under the unruptured conjunctiva. The prolapsed iris was neatly excised and the wound healed well, the lad obtained a good eye, with normal vision, and accommodation, the coloboma caused by the prolapsed iris being the only permanent result of the injury.

Dislocation of the Crystalline Lens.—Sometimes the crystalline lens is dislocated, the suspensory ligament being ruptured by the blow. In such a case there may be good vision if the lens is not much displaced and the rupture of its suspensory ligament only partial, but there remains permanent loss of power of accommodation, a serious enough injury to a young person. Occasionally the lens is completely displaced, in which case it may fall back into the vitreous or

forwards into the anterior chamber, though much more rarely, or even be extruded from the eyeball through a rupture in the sclerotic at the anterior part, being usually seen as a small round eminence underneath the untorn conjunctiva over the site of rupture; much more rarely the conjunctiva is also torn and the lens found under the upper lid on opening the eye, when it falls out. In these cases the eye is sometimes not otherwise seriously injured and may retain fair vision with a glass, though if displaced into the vitreous there is always a prospect of its causing destruction of the eye from recurrent attacks of cyclitis, a common result in such cases. Three years ago a man aged about 50 years came to me with his lens dislocated down behind the iris, by a blow on the eye. I determined to remove it, which I did as follows: sitting the man on the floor to prevent the lens falling back into the vitreous, I made a large incision above with a triangular knife, standing behind the man; withdrawing this carefully I at once introduced a large spoon, and removed the lens, without performing iridectomy; no loss of vitreous or damage to the iris occurred, though in such cases it is very liable to be folded back on the ciliary processes by the advancing vitreous, which has no suspensory ligament to retain it, and becoming adherent here, produces a large coloboma as if an iridectomy had been done. In my case the man recovered with a circular pupil, and no more mydriasis than was present before the operation, and $V = \frac{2}{3}$ = normal with a spectacle.

Injury to Iris.—The iris is often injured by blows, the commonest result being permanent partial dilatation, and more or less loss of the power of contraction of the pupil (Traumatic mydriasis), due it is said, by Hirschberg, to rupture of the sphincter of the iris; such a defect causes no trouble beyond the peculiar appearance of unequal pupils, and vision is often quite good, though not unfrequently in such cases there is also loss of accommodation from partial rupture of the suspensory ligament of the lens as well.

Occasionally the iris is detached from its base from rupture of the ligamentum pectinatum as in the case shewn (see page 243);

but this need not lead to any serious visual defect or anxiety if the only injury present, though it causes a permanent disfigurement of the eye.

The whole iris has been known to be thus detached by a blow, but such extensive detachments I have not myself seen. Atropine drops to the eye is the best treatment, but will not remedy the damage, which is permanent, though it may possibly, by causing the iris to dilate, render reunion more extensive than would otherwise be the case.

Occasionally the iris is retroflexed, as just alluded to, producing a coloboma as if iridectomy had been performed. In some cases, while the anterior parts of the eye escape injury, the posterior structures suffer more or less severely.

Detachment of Retina.—Detachment of the retina, either partial or complete, often follows blows on the eye. About two years since I was consulted by a medical man concerning his daughter, in whom a divergent squint having come on, he examined the child's sight, and found the diverging eye almost blind. Examination shewed detachment of the retina over the whole lower and outer half of the eye. This condition set in after a blow from a tennis ball, at the time not thought seriously of, and sight was entirely lost over the area of the F.V. corresponding to the detachment. Such cases I have seen many examples of.

Injury to Choroid.—In other cases, the choroid is ruptured, commonly at the posterior pole, central vision being lost, but more often extensive areas of the choroid and retina suffer damage and undergo atrophy with consequent loss of vision over a larger or smaller area of the F. V.

Some twelve years ago, a patient of mine brought an action for assault and damage to vision in one eye, and recovered substantial damages. In this case the man was struck a severe blow on the temple with a stick. When first seen no damage to the eye was discovered, beyond some opacities in the vitreous, shewing there had been some injury to the intraocular structures, but at the end of five or six weeks the whole of the

choroid over the inner half of the fundus was found to be undergoing atrophy, and the result was atrophic and pigmentary degeneration of the whole of the inner half of the choroid and retina, with blindness of the corresponding outer half of the F. V., and, as I pointed out to the Judge, that inasmuch as the great advantage of being able to see on the same side of him was lost, and consequently he was placed in as much danger almost to life and limb from this loss as if he had entirely lost the eye, he obtained full damages claimed, though the prisoner had a very able advocate, who gave me much trouble, and nearly succeeded in confusing the Judge, being furnished with many medical treatises which he produced in court. I afterwards found out that this gentleman had studied medicine before taking to the law

Some sixteen years ago I was consulted by a brother of one of our medical students in consequence of complete blindness of one eye, which had followed a severe blow from a football. In this case the choroid and retina over its whole extent was affected severely by atrophic and pigmentary degeneration. This is the only case in which I remember to have seen so severe result from a blow with such a soft missile as a football.

Three years ago I was consulted by a gentleman who received a blow from a whip while riding in a hansom cab. I saw him a few hours after the injury, which happened in a neighbouring town. He then had a small wound of the conjunctiva, but otherwise the eye seemed uninjured, and vision was perfect = $\frac{5}{5}$. At his next visit, two days later, the vitreous was opaque from hæmorrhage into it, and for many months the fundus could not be seen. At the end of six months his vision was again normal = $\frac{5}{5}$, but a few floating opacities were found in the vitreous. On ophthalmoscopic examination, a small round circumscribed patch of atrophy was seen in the choroid on the outer side, immediately opposite the wound in the conjunctiva, and there was a corresponding blind area in his F. V., otherwise his eye was perfectly good, vision with this exception, and accommodation being quite normal. Occasionally not only is the retina and

choroid damaged, but the sclerotic is ruptured posteriorly, as in the case shewn to-night (see page 243), but this is very rare.

Traumatic Cataract.—Sometimes cataract follows blows in the eye ; in these cases it is probable that there is generally a rupture somewhere of the capsule of the lens, allowing the aqueous or vitreous to permeate the lens structure and break it up. Such ruptures often affect the posterior part of the capsule, and are not seen through the opaque lens tissue.

Perforating wounds of the eye are common from various causes, a common way being by cutting with a knife or some sharp instrument towards the eye, when the knife slipping the eye is perforated ; undoing the knot in a bootlace with a fork, skewer, scissors, or some similar instrument, is a very common cause of this accident. For this reason I only allow blunt pointed scissors in my nursery, and do not permit my children the luxury of laced boots.

If only the cornea is injured and this not in the central region, the matter is not serious, and if the eye is bandaged for a few days, the case recovers without damage ; often in such cases the iris prolapses or is incarcerated in the wound ; when, if seen *within twenty-four hours, the iris may be generally replaced* ; but after a longer interval this is usually impossible, in which case the incarcerated iris should be neatly excised to avoid subsequent trouble. Very frequently the lens is wounded, in which case traumatic cataract at once commonly supervenes, and will require operative treatment. I have, however, seen two or three cases in which the lens has been perforated, and yet cataract has not supervened, only a small area of local opacity at the seat of puncture remaining.

Turners and fitters are very liable to perforating wounds from small pieces of metal flying off their tool or work, and lodging in the eye, these usually cause traumatic cataract at once. Some four years ago, however, I shewed a man at this Society with a piece of brass in his lens, which, however, retained its transparency for a limited time ; at the end of six weeks the lens began to become cataractous, and had to be subsequently removed by

operation, together with the piece of brass, the patient ultimately obtaining a good eye with $V = \frac{1}{16}$ with the aid of a spectacle.

Sometimes the piece of metal lodges in the anterior chamber, without causing any damage to the intra-ocular structures, and if speedily removed no harm results.

A Foreign Body lodges in the eye occasionally, and it is astonishing how long in some cases it may be tolerated there.

Twelve years ago I was consulted by a medical man about a patient who received what was thought to be a trivial injury from the smashing of a glass gas globe, but in a few days the eye was very inflamed and pus was found in the anterior chamber, and consequently I was consulted; under treatment advised he got quite well, and I did not see him again. Ten years later he consulted me for a very troublesome and intractable form of vesicular and bullous keratitis affecting the lower half of the cornea. After several weeks this cleared up, and his vision was then normal ($V = \frac{5}{8}$), and the iris was found quite free, and then lying in the bottom of his anterior chamber a piece of glass could be seen. I wanted him to let me remove this; but he refused, and I have seen no more of him, though this was two years ago.

About four years since a man came under my care with an attack of iritis in one eye, and a small cicatrix was found at the outer part of the cornea. I learned that twenty-five years previously he had suffered from a piece of metal flying into his eye, and that this was followed by much pain and inflammation for some weeks, but that from that time till a few months before seeing me, his eye has never given him any trouble; but some two months before I had seen him he was under the care of another oculist for an attack similar to that for which he consulted me. Seeing that he had a pigmented raised patch in his iris, opposite the old corneal cicatrix, I advised him to have an iridectomy performed, and have the piece removed, as I suspected there was a foreign body embedded here. To this he consented, and when the eye had become quiet some six weeks later, I performed iridectomy, excising this piece of pigmented iris, and in it I found a piece of steel, which I was much surprised to find

still adhered readily to the electro-magnet. I often see this man, and since iridectomy, he has had no trouble with his eye.

I have seen two or three cases in which foreign bodies have been seen with the ophthalmoscope embedded in the posterior structures of the eye for some weeks without causing any trouble, though I fear in most such cases the eye is sooner or later lost from detached retina. Another curious result in perforating wounds is to find one or more eyelashes conveyed into the anterior chamber, and there excite iritis. In one such case I removed, I think, four eyelashes from the anterior chamber.

Use of the Electro-Magnet.—Perforating wounds being usually caused by pieces of steel, the electro-magnet is most useful in such cases. It is most useful in removing pieces of steel from the anterior chamber, specially if situated on the iris, as by it the piece of metal can be drawn out without the iris often, or if the iris is drawn out it usually suffers little or no damage, so that it can be again replaced.

If there is traumatic cataract the magnet may be inserted to ascertain if a piece of metal not seen is present, and in cases in which the vitreous chamber is perforated, it is most useful, for often nothing can be seen in consequence of hæmorrhage into the vitreous, and the magnet being inserted removes a piece of metal which would not in any other way be detected; while if the foreign body is seen by the ophthalmoscope, it is used with the more confidence, though often, even in these cases, it fails to remove the metal in consequence of its being embedded in the tissues. Its insertion does not in my opinion materially increase the risk of the eye being lost. A large percentage of these eyes are lost by suppuration, no doubt from micrococci being carried into the eye at the time of injury; but many are now saved which were lost previous to the use of the magnet.

Formerly wounds of the sclerotic, specially if in the ciliary region, were considered to demand excision; now many such eyes are saved by neatly suturing the wounds, which often heal well; and even in the ciliary region if the wound is a clean cut, and heals readily without resulting uveitis, we do not excise;

many such eyes remaining good and causing no danger to their fellow.

Before the introduction of the magnet, the removal of pieces of metal which had stuck in the cornea, but which had nearly passed through it, and projected back into the anterior chamber, was attended by great anxiety, for fear of pushing them into the chamber in attempts to remove them; now, if they are pushed in, they can be drawn by the magnet to any point desired, and then removed. Some fifteen years ago I was attempting the removal of such a piece when I saw it fall into the chamber, my patient being in the usual position, lying on his back. Fearing it might fall behind the iris and lead to destruction of the eye from inability to remove it, I at once turned the patient completely over on his face, and was gratified to find the piece of metal subsequently lying at the bottom of the anterior chamber from which I readily extracted it. I always look back on this as one of the smartest things I have ever done in ophthalmic surgery.

Perforating wounds of Orbit—I must say a few words about perforating wounds of the orbit. These may be caused by thrusts with a stick or umbrella, or in some similar way. They are often at once fatal from perforation into the brain through the orbital roof, or from the stick rupturing the carotid artery in the cavernous sinus. In two or three cases I have removed large pieces of stick or other substances after being embedded for some time in the orbit similar to the case shewn to-night, in which I removed a piece of tobacco pipe which had been embedded in the orbit some ten weeks (see page 243)*.

One case I will briefly narrate. Some six years since a man received a thrust wound with a large shawl pin from his mother-in-law in a quarrel, and when I saw him four days later a small hard fixed point could be felt under the middle of the upper lid on left side. Feeling sure the body had perforated his orbital roof, I decided to remove it under Lister's spray, to

* This case has since made a complete recovery, the sinus has healed, and full movements of the eye are perfect.

lessen the danger of brain complication following. Under an anæsthetic I cut down on the foreign body and found it so firmly fixed that I could only remove it by seizing it firmly with a needle holder, when I drew out a piece of shawl pin about three inches long, which shewed by a mark in it that it had perforated the orbital roof for half its length. The case recovered without a single bad symptom, the wound healing by first intention.

Some seventeen years since a child was brought to me with a wound of the conjunctiva over the insertion of the inner rectus, with a large piece of the inner rectus hanging out. The injury was caused by the child thrusting a button-hook into its orbit while trying to undo its bootlace, and the mother finding it embedded drew it out, doubtless in so doing tearing out part apparently of the muscle with it, which I could not replace, and so cut off.

Quite recently a man came under my care at the Eye hospital, who had his conjunctiva extensively torn over the insertion of the upper and lower rectus, and both these muscles detached from their insertion by a piece of wood striking the right eye, no other injury being caused. I stitched the muscles as far as possible by sutures in their original position, but the case is not yet a complete success, and something more will have to be done.

It was my intention to have said something about gunshot injuries, but I feel I have already sufficiently trespassed upon the time of the meeting, so must deny myself that pleasure.

SOME POINTS IN PRACTICAL ANÆSTHETICS.

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(Continued from page 235)

The particular apparatus employed for administering the anæsthetic is of little moment. For ether, in which the administration must be very gradual to avoid cough and struggling, no apparatus equals Clover's inhaler, which has also the minor advantage of saving a great waste of ether. One must, however, whether giving chloroform or ether, be guided entirely by the physiological effects produced on the patient, and not by the quantity consumed. The susceptibility of different patients to anæsthetics varies extremely.

When ether is to be administered the unpleasantness of the vapour may be avoided, and all struggling on the part of the patient be done away with, by the judicious use of nitrous oxide gas before giving the ether. Some care is required in changing the gases not to allow consciousness to return on the one hand, and on the other, not to push the administration of ether too quickly at first and so produce a spasm. But when the change is made successfully anæsthesia may be induced with scarcely a struggle in a very short space of time. The special apparatus made by Clover for this purpose is a very heavy and unnecessarily cumbrous one. With a few modifications made in the ordinary Clover's inhaler one is able to administer nitrous oxide alone, nitrous oxide and ether mixed, or ether and air in the ordinary way.

The action of the pupil, the state of the pulse, respiration and face are our chief guides, and I do not know which of the last three guides we could dispense with. Of this I am confident, speaking of chloroform anæsthesia, that though the respiration is, as a rule, the first to fail, and nearly always stops before the

heart, yet I have seen cases in which the pulse has given warning by irregularity, intermittency, or feebleness some time before the respiration began to fail. And I have no doubt whatever in my own mind, that whatever be the action of chloroform on monkeys and dogs, as ascertained by laborious and carefully collected experiments of the Hyderabad Commission ; yet, that in man it has a direct depressant action on the heart itself, and that in rare cases that organ may suddenly cease to beat without the respiration giving any warning. I may say whilst on the subject of chloroform anæsthesia, that I entirely disagree with the statement one often hears, that a little chloroform is more dangerous than none at all for the purpose of an operation.

"Drops may kill where drachms may save," is an old Scotch aphorism applied to chloroform. The theory that chloroform, in the early stage of its administration, abolishes the inhibitory influence of the higher nervous centres or reflex nervous shock, and so renders the heart more vulnerable to the action of reflex shock, is but theory and pure theory. I have never yet met with a case which would bear that interpretation and that alone ; my experience, which is comparatively small, is but the same of specialists who can reckon their anæsthetic cases by tens of thousands.

I believe that any operative procedure undertaken without chloroform, and therefore with the shock due to fear, and sensible pain superadded to that of the operation, will always produce a greater reflex influence on the heart, than the same procedure done when the elements of fear or pain have been removed by chloroform, even if only given in sufficient quantity to dull consciousness.

There is in fact no such thing as death from too little chloroform. It is true that many deaths have occurred in minor operations, such as dental operations and the like, but we must remember that, in many of these cases, the patient has not in any way been prepared for the anæsthetic, and in some cases the anæsthetic has been given when in the sitting or semi-recumbent position.

However I would not for a moment advocate keeping patients only partially under the influence of the anæsthetic. It is most important for many reasons (the least of these being the convenience of the surgeon) that anæsthesia should be complete before any operative procedure is commenced.

This is especially important in operations about the genitals or anus. Such operations under partial anæsthesia only, are especially prone to set up reflex spasm of the glottis, which may very much impede the progress of the operation, even if it do not endanger life. But whatever our views as to the cause of syncope during anæsthesia, more unanimity happily prevails in our treatment. The first step is to stop the administration of the anæsthetic, and by drawing the lower jaw forward give a free passage to air into the lungs. If that fail, the tongue should be drawn forward with forceps, and the back of the throat cleared of mucus. Unless the symptoms disappear, artificial respiration by Silvester's method must be resorted to, and continued until spontaneous respiration has recommenced. Whilst artificial respiration is being performed by an assistant, the patient should be partially inverted, as Nélaton advised. This inversion is almost, if not quite, as important as artificial respiration itself; it often acts at once like a charm, in restoring the failing circulation. The position of inversion must be maintained until the pulse is fully restored to its normal volume, the pupils have contracted, and the pallor of the exposed parts has disappeared.

Some years ago, a letter appeared in the *Lancet* from a distinguished Scotch anæsthetist deprecating the treatment of inversion as being both dangerous and "opposed to rational and physiological principles." The writer argued that, "as in chloroform syncope the right cavities of the heart and pulmonary system in general were already surcharged with blood, raising the lower limbs could only further embarrass its action; for all the blood from the venous system has necessarily to go through that side of the heart and the pulmonary circulation before it could be pumped to the anæmic brain." But whether opposed

or not to physiological principles, it is the most useful means at our command for restoring the heart's action, and acts in all probability by keeping the anæmic cardiac centres in the medulla oblongata supplied with blood. We have doubtless all, or most of us, seen cases in which it has proved of the utmost value, and it only affords another instance of treatment based on accurate clinical observation being of far greater value than any based on physiological reasonings. Besides these measures, which are of primary importance, there are other minor ones not to be neglected. An enema of brandy and subcutaneous injection of ether is of great value occasionally. This fact again seems to point to the heart as being primarily at fault, and not the respiration, save indirectly. Of the value of amyl nitrite in these cases I cannot speak from practical experience.

The galvanic battery might also be of service, but of course is rarely at hand when needed—the danger occurs when least expected. After the patient has rallied it is a wise practice to postpone the operation, if possible, until a future day, rather than to continue the administration of the anæsthetic. After the balance has once been upset, the patient is not usually in a fit state for any operative procedure, and the anæsthetist is, as a rule, somewhat unnerved for the time.

Ether, like all other stimulants, when taken in excessive quantities, acts as a cardiac depressant, and this is the only way in which it can affect that organ for evil. The most common mistake beginners make when giving ether, is to forget to lessen the proportion of ether when full anæsthesia is established. They continue to make their patients respire an atmosphere as highly charged with its vapours as when getting them under its influence. It is surprising how very little ether will often suffice to keep a patient well under its influence towards the close of an operation, and this small quantity will always postpone vomiting until the operation is completed. The chief difficulty in administering ether that may arise is with the respiration. The respiratory mucous membrane of some patients is so sensitive that, unless the ether be given highly diluted with extreme

regularity, so much irritative cough is set up, and so much mucus is secreted, that the patient runs a risk of being asphyxiated. In such cases chloroform should be substituted.

The normal state of the pupil in anæsthesia deep enough for surgical purposes is a contracted one, in which it has not lost its reaction to light. Any dilation which occurs is, as a rule, a herald of returning consciousness, of vomiting or of dangerous syncope. But during ether anæsthesia, though contraction of the pupil is the rule, yet it is a rule to which there are frequent exceptions, and the behaviour of the pupil is not so sure a guide.

I would here utter a mild protest against the practice one so often sees of constantly flicking the conjunctiva with a view of ascertaining if complete anæsthesia exists. Besides often causing some slight conjunctivitis afterwards from the irritation, it is no sure guide towards the close of an operation, for the anæsthetic vapour by its local influence, and the repeated contact of the finger mechanically, have combined to render the conjunctiva insensitive, while the rest of the body may be anything but insensible to pain.

Except for its unpleasantness, the after sickness of anæsthesia, when not severe, is not an unmixed evil. It effectually aids in the elimination of the anæsthetic from the system and so hastens the return of consciousness. Such sickness is quite as common, and perhaps even commoner after ether than after chloroform. But in my experience, one never meets with the violent, prolonged, and even dangerous vomiting after ether, that occasionally, though happily but rarely, follows the use of chloroform. The main principle in the treatment of vomiting after anæsthesia, is to give the stomach complete mechanical and physiological rest. Nothing whatever should be given by the mouth till it has ceased, alimentation, if necessary, being carried on by the rectum. A small morphia hypodermic and a mustard leaf applied to the epigastrium, I have found to be of most service in obstinate cases.

As to the mortality from anæsthetics and the various

suggestions which have been made from time to time with the view of lessening it—Statistics on the subject of anæsthesia-mortality are not so valuable as statistics usually are or should be: partly because a knowledge of the total number of anæsthetics given is essential, that we may know the mortality of any particular one, and partly because many such calamities are, for many reasons, never reported.

Lyman has laboriously compiled statistics of all the cases he can find where registers have been kept, and gives the following numbers:—

Ether	99,265 inhalations with 6 deaths, or 1 in 16,542
Chloroform	492,235 „ „ 84 „ „ 1 „ 5,860

But these figures do not, I fancy, make the mortality as high as it really is. At St. Bartholomew's Hospital, where anæsthetics are given almost exclusively by skilled anæsthetists, the numbers for a period of 15 years, are as follows:—

Chloroform	was given 17,666 times, with 12 deaths, or 1 in 1,472
Ether	„ „ 7,493 „ „ 1 death, or 1 „ 7,493

I have just briefly tabulated the deaths from anæsthetics which have been recorded in the pages of the *British Medical Journal* during twelve months ending last January. During that time, 24 cases of death under chloroform were recorded in its pages, 2 under ether, 2 under methylene, and 1 under the A.C.E. mixture.

I have drawn up a table of these cases with such information about each case as I could glean from them. Of course no deduction can be drawn from such a table as to the relative danger of the different anæsthetics. But it is of great interest to observe that in no less than 13 of the 24 cases of death under chloroform, it is distinctly stated that the heart's action was suddenly interrupted or arrested without the respiration having given any previous warning, and in some cases, it is distinctly stated that the respiration continued for some time after the pulse at the wrist had ceased to be perceptible.

This should make us pause before accepting as a dogma applicable to man any statement that chloroform invariably kills primarily through the respiration.

Many suggestions have been made from time to time with a view of altering this state of affairs. Some have suggested State interference, others that chloroform should never be administered except in the presence of two medical men. This latter suggestion is much to be desired for many reasons, but in country practice it would frequently be impossible to carry it out.

Another suggestion is that there should always be two skilled anæsthetists present, one who should watch the breathing, and one who should confine his attention to the pulse. But this suggestion, besides being still less practicable than the last, is also open to the fatal objection (though what I maintain is an objection others claim to be an advantage), viz. : that it divides the responsibility. But a divided responsibility often means no responsibility at all, and the subdivision of labour would be impracticable, or lead to serious complications in case of any disagreement between the administrators. Under present conditions, anæsthesia will always be attended by some risk to life. Our object should be to minimise that risk. This we shall best do by ourselves aiming at the highest proficiency in the art, and exercising in each case all possible care, while at the same time inculcating the same principles in the students of our medical schools.

At present instruction in anæsthetic giving is altogether outside the ordinary medical curriculum. It is given in some schools, but in others students are left to learn it how they can. In fact some authorities even go so far as to say that students should never be allowed even under supervision to administer anæsthetics.

In many places, and I am afraid that it is not an exception here, the notion is gaining ground that anyone can give an anæsthetic, and I have heard a dresser whilst being coached in giving chloroform by his surgeon, instructed to place a towel tightly over the patient's face, to withdraw the stopper of the chloroform bottle and allow the chloroform to drop on the towel until he is under. "A little such learning is a dangerous thing," and the

light and airy manner in which one occasionally sees the self-taught student anæsthetist proceed about his work would be amusing, did one not foresee the fright he will soon inevitably experience when he has his first bad case.

It is considered of the utmost importance that every student should have paid his guinea fee for instruction and initiation into the mysterious rites of the vaccination art, and yet anyone may go out into the world fully qualified, without ever having read a word about anæsthetic giving or having ever touched a chloroform bottle.

I would have in every medical school set classes for instruction followed by examination in the subject, and a certificate of having personally given a certain number of anæsthetics (of course under supervision) presented by each student with his other certificates when he enters for his final examination for qualification.

PERISCOPE.

NERVOUS DISEASES.

BY C. W. SUCKLING, M.D. LOND., M.R.C.P.
PROFESSOR OF MEDICINE, QUEEN'S COLLEGE, BIRMINGHAM.

The relationship between General Paralysis of the Insane and Syphilis.—Dr. Jacobson, of Copenhagen, contributes an article on the above subject to the *Journal of Mental Science*, April, 1892. The most generally accepted theory is that which recognises the prominence of syphilis as a causative factor in the history of general paralysis, but it is not considered “a *conditio sine qua non*.” General paralysis is a cerebral disease, which arises in a brain impaired by previous syphilis or other disease. The disease is probably produced by changes in the cerebral blood vessels caused by antecedent syphilis.

The syphilitic theory of the origin of general paralysis is supported by the following facts :—

1. Syphilis is found more frequently in the history of general paralysis than in the history of any other form of insanity. Rieger states that among 1,000 non-paralytics, he finds 39 to have had syphilis, while among 1,000 general paralytics, 399 were syphilitic. In other words, syphilitics have a chance of acquiring general paralysis, which is sixteen or seventeen times greater than that of non-syphilitics.

2. A further argument in favour of the syphilitic origin of general paralysis is to be found in the close resemblance to locomotor ataxia, and in tabetics 80-90 per cent. have had syphilis. In all probability we have merely to deal with a different localization of one and the same morbid process. Strümpell asserts that general paralysis is but cerebral tabes.

3. The limitation of the disease to certain grades of nationality, and its infrequency in others supports the syphilitic view. Thus it is exceedingly rare among the Russian Jews, and syphilis is also exceedingly rare among these people.

4. General paralysis is far more rare among women than among men, and the women who are attacked almost always belong to large towns and to the lowest grades of society. Dr. Jacobson states that of 116 cases of female general paralytics, it was almost certain that almost half had had syphilis. No other cause can even approximately vie with syphilis in frequency as an originating factor of general paralysis. Heredity was found to be present in 28 per cent. only of cases, and then an indirect heredity only. Although syphilis is a great predisposing cause of general paralysis, yet antisymphilitic remedies (except in rare instances) have no effect in curing the disease, there being no actual syphilitic growths, just as is the case in locomotor ataxia.

Epileptic Colonies.—Dr. C. Theodore Ewart, of the Colney Hatch Asylum, advocates the establishment of an "Epileptic Colony," provision being made for epileptics in separate cottages on the same estate. In the organisation of such a colony he advocates—1. The acquirement of at least 500 acres of land

within easy access of a large city. 2. Small buildings—these to be arranged into separate divisions for the male and female patients; each of these divisions to make provision in separate cottages for the demented, the convalescents, the school children, the workers. 3. Medical supervision. 4. An educational building for epileptic children. 5. Workshops for adult epileptics, farm buildings, dairy, etc. It is unfortunately the fact that absolutely nothing is done for the poor epileptic in this country beyond confining them in workhouses or asylums.

Polyuria in Sciatica.—MM. Deloee and Rémond have recorded the occurrence of polyuria during the attacks of pain in sciatica. One patient had had an attack of sciatica some years before and had noticed the same phenomenon then. During the attacks the urine passed amounted to 105 to 140 ounces in the twenty-four hours, while in the interval the quantity was normal.

On the Simulation of Hysteria by organic disease of the nervous system, by Dr. Buzzard (J. and A. Churchill, Lond.)—The object of this little volume is to draw attention to the frequency with which symptoms liable to be looked on as hysterical are found to be really due to structural changes in the nervous system. Dr. Buzzard calls attention to the importance of the absence of the knee-jerks as indicating organic disease; it is only in very rare cases that the knee-jerks are lost in hysteria. He also lays stress on the importance of the plantar reflex, and states that it is almost always the case that this reflex is either lost or greatly diminished in cases of hysterical paralysis. Its presence in a doubtful case affords rather strong presumptive evidence of the affection being organic. Dr. Buzzard states that ankle clonus may be present in hysterical paraplegia. He denies that a shifting loss of power from one limb to another is characteristic of hysteria; such cases are usually instances of multiple sclerosis and not cases of hysteria. Dr. Buzzard regards tremor as the most important diagnostic symptom of multiple sclerosis.

Paralysis after subcutaneous injection of Ether.—Two cases of paralysis of the extensor muscles of the forearm have been

recorded after injection of ether into the dorsal surface of the forearm. The electrical irritability is diminished and the lesion is probably a peripheral neuritis. Cure resulted in a few weeks. —(*Prov. Med. Jour.*, Jan. 1892).

The Anal Reflex.—By Rossolimo (*Neurol. Centralbl.*, 1891), abstracted in the *Provincial Medical Journal*. By this reflex is meant contraction of the sphincter muscle following stimulation of the skin and mucous membrane of the anus in healthy subjects. The reflex is increased, (1) in neurasthenic patients; (2) in high transverse myelitis. It is diminished or absent (1) in cases of multiple neuritis where sacral plexus is affected; (2) in locomotor ataxia; (3) in myelitis of lower portion of lumbar region. It remains normal in functional neuroses connected with micturition, defæcation, and sexual power.

Congenital Spastic Paraplegia.—Lorenz distinguishes three groups of cases, (1) those with talipes equinus; (2) those with flexion contracture of knee-joint; (3) adduction contracture of thigh. In talipes equinus he tenotomises the tendo Achillis and fixes the foot in the calcaneal position. In cases of adduction spasm of the thighs he excises portions of both branches of the obturator nerve. Where there is flexion spasm of the knee-joint he recommends simple tenotomy of the biceps femoris and excision of about one to two centimeters of the tendons of the semi-membranosus, semi-tendinosus, and gracilis, after freely exposing them.

Borax in Epilepsy.—Professor Mairet, of Montpellier (recorded in *The Practitioner*, Jan., 1892) finds that borax is most useful in those cases where epilepsy supervenes upon some organic disease, e. g., where there is hemiplegia, athetosis, unilateral atrophy, etc. In purely functional cases the drug is almost useless, and not at all to be compared with the bromides in efficacy.

Laryngeal Paralysis in Tabes Dorsalis.—Professor Fraenkel states that there exists two groups of cases. In the first, there may be seen either on one side or the other paralysis of the abductors. In the other group, the appearances are negative, and the condition is one of weakness of innervation of the

postici muscles, which do not suffice properly to widen the glottis.

Symptoms of Tetany.—(*Practitioner*, Feb., 1892). Schlesinger states that facial irritability is often absent in young children, while it is usually present in adults and older children. In children tetany is usually associated with laryngismus and the rachitic condition.

The mechanical excitability of the nerves is strongly marked. Trousseau's symptom, the induction of spasm by pressure on the main blood vessels of the limbs is usually present and the contractions differed from what occurs in adults. The contractions affect more often the entire muscular system and athetotic movements of the fingers occur, the latter occur in the great majority of cases of tetany in children on attempting to produce Trousseau's symptom. Schlesinger sums up as follows :—

1. The facial phenomenon may be found at any age, less frequently in healthy individuals than in sick people.
2. Mechanical over-excitability of motor nerves may be seen sometimes in individuals not affected with tetany.
3. Trousseau's symptom occurs only in tetany; in children it often leads to athetotic movements of the fingers.
4. There are slight chronic forms of tetany, which seldom lead to spontaneous contractions; latent forms may exist for a longer or shorter time without any voluntary spasm, while during that time Trousseau's symptom may be present along with others.

SURGERY.

BY WILLIAM F. HASLAM, F.R.C.S.

The treatment of Tuberculosis of bones and joints by parenchymatous and intra-articular injections.—By Nicholas Senn, M.D. In the *Annals of Surgery* for January, 1892, there is a valuable communication on the above by Professor Senn. As the result

of his experience of this method of treatment, he comes to the following conclusions :—

1. Parenchymatous and intra-articular injections of safe anti-bacillary substances are indicated in all subcutaneous tubercular lesions of bones and joints accessible to this treatment.

2. Of all substances so far employed in this method of treatment, iodoform has yielded the best results.

3. The curative effect of iodoform in the treatment of local tuberculosis is due to its anti-bacillary effect, and its stimulating action on the healthy tissue adjacent to the tubercular product.

4. A 10 per cent. emulsion in glycerine, or pure olive oil, is the best form in which this remedy should be administered subcutaneously.

5. The ethereal solution should never be employed, as it is liable to cause necrosis of the tissues overlying the abscess and iodoform intoxication.

6. Tubercular abscesses and joints containing synovial fluid or tubercular pus should always be washed out thoroughly with a 3 to 5 per cent. solution of boracic acid before the injection is made.

7. Injections should be made at intervals of one or two weeks, and their use persisted in until the indications point to the cessation of tubercular inflammation, and the substitution for it of a satisfactory process of repair, or until the result of this treatment has shewn its inefficiency, and indications present themselves of the necessity of resorting to operative interference.

8. If the treatment promises to be successful, symptoms pointing to improvement manifest themselves not later than after the second or third injection.

9. In tubercular empyema of joints and tubercular abscess at each successive tapping, lessening of the solid contents of the fluid and increase of its viscosity are the conditions which indicate unerringly that the injections are proving useful, and that in all probability a cure will result from their further use.

10. Moderate use of limb is compatible with this method of treatment, provided the disease has not resulted in deformities,

which would be aggravated by further use of the limb. In such cases, correction of the deformity should be postponed until the primary joint affection has been cured by the injection.

11. Parenchymatous and intra-articular medication with anti-bacillary remedies has yielded the best results in tubercular spondylitis attended by abscess formation, and tuberculosis of the knee and wrist joints.

12. This treatment may prove successful in primary osseous tuberculosis followed by involvement of the joint, provided the osseous foci are small.

13. Extensive sequestration of articular ends with secondary tubercular synovitis always necessitates resection, but preliminary treatment by iodoform injection into the affected joints constitutes a valuable preparatory treatment to the operation, and adds to the certainty of a favourable result.

14. In open tubercular affection of joints, incision, scraping, disinfection, iodoformisation, iodoform gauze tampon, suturing, and subsequent injection of iodoform emulsion as advised by Billroth yields excellent results, and should be employed in all cases in which a more formidable operation can be avoided.

15. Balsam of Peru ranks next to iodoform in the treatment of tubercular affections of bones and joints, and if the latter remedy for any reason cannot be employed, or has failed in effecting the desired result, it should be given a fair trial if operative treatment is not urgently indicated.

Fracture of the Anterior Inferior spine of the ilium by muscular action.—Under the care of Mr. Shipton, of Buxton (*Lancet*, March 26th, 1892).—The record of this case is of extreme interest, as no reference is to be found to this condition, except as the result of gunshot injury or severe crush of the ilium. The patient, whilst carrying a hod full of bricks over his left shoulder felt his foot slip, and to prevent the bricks falling on him threw the hod backwards, falling on "all fours" into a quantity of soft shale sixty feet below. On carefully examining the pelvis, a piece of the anterior edge of the right ilium, about one inch in length and three-quarters of an inch in breadth,

comprising the anterior inferior spine with the origin of the short head of the rectus, was found to be detached from the ilium to the extent of about a quarter of an inch, and could be easily moved between the fingers. There was no redness or ecchymosis on the skin over the part. The rectus was relaxed, and later on when the patient recovered consciousness, he was asked to flex the right thigh, and the slight movement that he could make caused pain at the seat of fracture and further separation of the fragments. Recovery was complete, much callus being thrown out.

Case of Compound Dislocation, with version of the Astragalus: removal of the bone: recovery.—Under the care of Mr. Pick (*Lancet*, March 26th, 1892).—The patient, a man aged 45, was standing on a scaffold, when this gave way. In his fall his foot caught the end of a plank, and twisted it. On admission into S. George's Hospital the anterior part of the foot was turned inwards at the mid-tarsal joint, so that it was at about a right angle with the axis of the leg. On the outer side of the foot was a wound, extending from the front of the ankle joint, just external to the tendon of the extensor longus digitorum, obliquely downwards and outwards to just below and in front of the external malleolus; through this was protruding the head and neck of the astragalus. The bone was rotated in such a way that its inner surface was looking forwards. It was completely separated from its attachments, with the exception of part of the external lateral ligament and a band of fibrous tissue on the inner side. On division of these, removal was easily effected, and the bone was found to be intact, with the exception of a slight graze on its head. There was no fracture of any other bone, and but slight bruising of the soft parts.

Permanent subcutaneous suture of the patella for recent fracture. By Arthur E. J. Barker, F.R.C.S. (*Lancet*, Feb. 27th, 1892).—In this paper Mr. Barker draws attention to a method of bringing together the separated fragments by means of a subcutaneous suture, and towards the close of it says: "were I to fracture my own knee-pan, I should prefer to have it treated by the per-

manent subcutaneous suture rather than any other." The author does not refer to it as a new procedure, though he has been unable to find any record of it. "But," he says, "the question is not whether it is novel, but whether it is good, and if other surgeons have ever employed it I shall be greatly interested to know whether they have been as favourably impressed by it as I have in the results of these four cases." The four cases referred to suffered from simple transverse fracture of the patella, and the operation was performed within the first twelve hours, before the blood effused into the joint had time to clot to any extent. The operation is performed as follows: "Every precaution having been taken to secure asepsis, the lower fragment of the patella is steadied at either side by the left forefinger and thumb of the operator, who stands on the right side of the patient. A narrow bladed knife is then thrust into the joint, edge upwards, exactly in the middle line of the ligamentum patellæ at its attachment to the lower fragment. As this knife is withdrawn cutting upon the lower edge of the latter, the skin wound is slightly enlarged to about two-thirds of an inch. Through the wound thus made a stout handled pedicle needle is thrust into the joint behind the lower fragment, and is pushed upwards behind the upper fragment and through the quadriceps tendon in the middle line as close to the border of the bone as possible. The upper fragment at this moment should be forced down and steadied. When the point of the needle is seen under the skin, the latter is drawn upwards, and an incision is made upon it, and for two-thirds of an inch downwards to the edge of the patella, the knife entering the joint in the middle line over the needle. The eye of the needle is now threaded with stout perfectly sterilised silk or wire, and is withdrawn, carrying the thread of course behind both fragments. The needle, again unthreaded, is now passed through the same skin wound below, and out of the upper wound, but this time in front of and close to both fragments. Here it is threaded with the other end of the suture and is withdrawn. The thread now forms a loop over the upper border of

the upper fragment, both ends hanging out of the lower wound, one arm of the loop passing behind and the other in front of both fragments. The upper fragment is then forced downwards by an assistant until its broken surface touches that of its fellow, against which it is rubbed by lateral and antero-posterior movements until it is felt that any blood clot or other material is dislodged, and they are both in position and grating. The operator then pulls firmly upon the suture, and ties or twists its two portions upon the lower border of the patella. The projecting ends are then cut off, and the small skin wound closes over the knot." On incising the joint, as much blood as possible is squeezed out. Wire was used in the first three cases, silk in the fourth; the results in all being good. The after-treatment consisted in keeping the patients in bed, with an ice-bag over the knee until the skin wounds were healed, which took place in all under one dressing, and without a drop of suppuration. At the end of eight or ten days the splints were removed, and the patients were allowed to move the knee a little while in bed; at the end of five weeks all were able to walk firmly, and no trace of the line of union in the bone could be made out.

On Massage in the Treatment of Fractures, Dislocations and Sprains.—By Kendal Franks, M.D. (*The Dublin Journal of Medical Science*, November 2, 1891.)—This able exposition of the subject will go far to secure an extended trial of this method of treatment by those who possibly have not used it to any extent. Mr. Franks points out that while by the ordinary means of treatment, fractures are kept at rest and union of the bone is in due course secured, this very rest, essential to the bone, is not favourable for the removal of blood and lymphatic engorgement; this blocking of the venous and lymphatic paths producing that oedema so often seen around and below a fracture. The result of this accumulation of blood and inflammatory products is that they become replaced by fibrous tissue forming adhesions between various parts and impairing the free use of the muscles. The damaging effect of these adhesions is intensified if they are near a joint, as after a Colles' or Pott's fracture, after either of

which, some stiffness is so common; these he says "may be obviated by an early resort to the aid of massage." Massage "supplies mechanically the squeezing force to the lymphatic channels which the muscular contractions ought to supply when they are able to do so. But it does more than this. I believe it breaks up and disentangles the blood clots, and forces them into the lymphatic vessels. It exerts the same power over the lymph, blood plasma, and waste products, and thus prevents the formation of adhesions which would otherwise occur. But experience shews that it does much more; it stimulates the circulation in the part, and this hastens the process of repair, the rapidity with which a well masséed fracture unites is very remarkable; it relieves pain." In the cases quoted, the splints have been removed, and while the seat of fracture has been kept at rest, massage has been used from twenty to thirty minutes a day, and the results have been good. Equally good results are shewn in cases of sprain and in dislocations.

REPORTS OF SOCIETIES.

BIRMINGHAM AND MIDLAND COUNTIES BRANCH OF THE BRITISH MEDICAL ASSOCIATION.

PATHOLOGICAL AND CLINICAL SECTION.

Meeting, Friday, March 25th, 1892, A. H. CARTER, M.D.
F.R.C.P., in the Chair.

Carcinoma of the Stomach and Large Intestine.—Dr. Carter shewed a specimen of carcinoma of the stomach and of the large intestine in the same patient, the intestinal growth having produced obstruction.

Bitemporal Hemianopsia.—Mr. Priestley Smith shewed a case of bitemporal hemianopsia. The patient was a man aged about 50, under the care of Dr. Foxwell at the Queen's Hospital.

When first examined four weeks previously there was complete blindness of almost the whole of the temporal half of each field with a sharp line of demarcation passing apparently exactly through the fixation point. Now, the blind area was steadily receding above and below, especially in the left eye, but in both eyes it still was absolute in the central area and appeared to reach exactly to the fixation point. This absolute bisection, which was demonstrated to the members, appeared to disprove, for the case in question, the supposed connection of the whole of the macular region with both sides of the brain. The seat of the lesion was probably the posterior angle of the optic commissure towards the upper rather than the lower surface, and affecting the left side of the commissure more than the right. There was nothing to definitely indicate the nature of the lesion. A small hæmorrhage seemed the most probable. The patient was taking iodide of potassium.

Intestinal Anastomosis.—Mr. Barling shewed the remains of bone plates used in a case of intestinal anastomosis by Senn's method. The operation was performed for the relief of the condition left after a gangrenous hernia of the large intestine in the right groin. There was constantly a large prolapse and *all the intestinal contents were discharged here.* At the operation some of the mesenteric vessels of the small intestine had to be tied to control hæmorrhage; this led to a fatal result on the sixth day, from perforation of the small intestine where the blood supply was interfered with. The anastomosis was easily made and was supported by points of interrupted suture. A solid motion was passed on the fourth day, and the patient appeared to be doing well until perforation occurred, which was rapidly followed by death from shock.

At the autopsy the anastomosis between the ileum, about ten inches from the ileo-cæcal valve, and the transverse colon, beyond the artificial anus, was found firmly united and solid motion was passing through it. Of the plate in the small intestine only a small portion, about one-tenth was left. The plate in the large gut was reduced to about one-third of its original size, and both plates were almost free.

Intestinal Obstruction from plastic peritonitis caused by a suppurating mesenteric gland.—Mr. F. Marsh shewed this specimen and related the history of the case. M. T., a delicate looking girl, æt. 5, with a good previous and family history, was admitted into the Queen's Hospital, on March 5th, 1892. On the morning of Feb. 28th she was apparently quite well, but in the afternoon she vomited two or three times. The vomiting continued, and the following day she complained of pain about the umbilicus. Constipation was absolute. Enemata were given, but brought nothing away but a little mucus. Twenty-four hours before admission the vomit became fæcal.

On admission, the child was in a condition of imminent danger; the face was anxious, the tongue dry, and the pulse rapid and thread-like, the abdomen was but little distended, but was tender on pressure, especially on the right side. Nothing definite could be detected by palpation or rectal examination.

An exploratory median incision was made without delay; the omentum was adherent to the parietal peritoneum, and the coils of intestine were generally adherent to each other and to the omentum, no one seeming specially distended. There was no effusion in the peritoneal cavity. In the right iliac fossa the last few feet of the small intestine were found contracted and empty, matted together and bound down by adhesions, and in breaking down these about a drachm of pus and a flake or two of caseous material escaped. The fossa was irrigated with hot boracic solution, a drainage tube inserted, and an enterostomy rapidly done just above the constricted portion. The child stood the operation well, about a pint and a half of liquid fæces were drained away, and the vomiting and pain ceased, she however failed to sustain the rally, and died some ten hours afterwards.

The *post mortem* examination confirmed the result formed at the time of the operation. In addition, two or three mesenteric glands were found enlarged, one had suppurated, and the breaking down of adhesions at the time of the operation, had given exit to part of its contents. The abscess cavity was capable of

holding about two drachms, was probably of tubercular origin, and evidently the cause of the peritonitis. No other lesion was found, both the cæcum and appendix being healthy.

The case presents many features of interest from a diagnostic point of view. The treatment adopted seemed to be the only one possible; the general condition of the child made any prolonged operation out of the question, and the local condition rendered a satisfactory anastomotic operation difficult if not impracticable. Considering the extent of the adhesions and their subsequent effects, the fatal result was perhaps the best for the child.

MIDLAND MEDICAL SOCIETY.

Wednesday, March 23rd, 1892.

BENNETT MAY, F.R.C.S., President, in the Chair.

Nephro-Lithotomy.—Mr. Barling shewed a man aged 22, from whom he had removed a renal calculus of uric acid, weighing 20 grains, by the ordinary lumbar incision. There was a history of repeated attacks of renal colic during the preceding fifteen months and, according to the patient's account, of hæmaturia. The urine contained red corpuscles, a number of leucocytes, and a few hyaline casts, but no crystals. The kidney could not be palpated, but there was a tender spot at the outer margin of the erector spinæ. The kidney was examined by the finger, by needling, and subsequently, by a sound introduced through an incision into the pelvis at the lower part. The stone was not detected by either of these methods, so the incision into the kidney was enlarged until the finger could be introduced, when it detected an indurated spot in the organ. This when cut on to proved to be the stone, which appeared to be imbedded in the lowest calyx. An interesting feature in the attacks of renal colic is that they were induced by emotional conditions and not by bodily exertion.

Case of Congenital Deformity.—Dr. Craig shewed a male child eighteen months old. Only two fingers and thumb on each

hand. Interest attaching to this case lies in the fingers present being middle and ring. The likelihood would be for one to take them for index and middle, all the more so in the present case from their proximity to the thumb. On applying a crude test however, by means of the interrupted current, it could be ascertained roughly that the fingers present were middle and ring. Ulna and radius both present, but carpels deficient in number; deformity symmetrical; one testicle over left external ring, the other either absent, not descended, or too far back to be felt. No history of malformation either on father's or mother's side.

Ovarian Cysts.—Dr. Malins shewed: 1. Two cases of ovarian cysts with twisted pedicle. 2. Fibro-myoma of uterus, four pounds in weight, removed from pregnant uterus by abdominal section.

Dr. Suckling read a note on Paralysis of the Diaphragm.

Paper.—Dr. Malins read a paper on the Treatment of Fibroid tumours of the Uterus.

Wednesday, April 6th, 1892.

Mr. HENRY EALES in the Chair.

Raynaud's disease associated with Hereditary Syphilis.—Mr. F. Marsh shewed this case, a boy æt. 12, with a phthisical and doubtful syphilitic family history. Twelve months ago he fell down "as if in a fit," not epileptiform, and was unconscious for seven hours; since then he has had several similar but milder attacks. His mental condition has always been weak, and he has had nystagmus for two years.

On February 26th, 1892, the three inner toes on each foot suddenly became cold and blue, and a week later, he was brought to the Queen's Hospital with these toes in a gangrenous condition. The circulation in the hands and nose was bad, but fairly good in the ears. He had well-marked nystagmus; his teeth were almost typical of hereditary syphilis, and his patellar reflexes were exaggerated. After admission into hospital, he

rapidly improved, the only treatment being warmth, good food, and small doses of opium. He was discharged on March 6th, having only lost the tips of the two inner toes on the left foot, and the nail of the right great toe. After his discharge he went on well until March 27th, when all the toes on each foot again suddenly became cold and blue. He was re-admitted March 30th, the toes then apparently being in a hopeless condition. Again he rapidly improved under similar treatment, and when shewn on April 8th, the toes had almost regained their normal condition, except that a little more of the soft parts of the toes previously ulcerated had sloughed away.

Xeroderma.—Dr. Leslie Phillips shewed a young woman with xeroderma who had applied for treatment of eczema of the face. It was pointed out that in xeroderma the face, like the flexures was but slightly affected, but that when it was so wintry winds easily produced an eczematous condition for which aid was sought, although it was but the secondary condition.

Dr. Leslie Phillips also presented a youth shewing a deeply pigmented syphilitic efflorescence affecting the brow, sternal and interscapular regions, and the flexures of the limbs. The primary lesion occurred eighteen months ago, and the case was clearly a complex of seborrhœal eczema and syphilis, the situation of the eruption of the latter disease being determined by the pre-existence of seborrhœal eczema.

Case of pure Aphemia.—Dr. Suckling shewed a little girl (aged 10), suffering from complete aphemic aphasia resulting from embolic softening. The aphasia supervened suddenly a fortnight after an attack of rheumatism. The right side of the face and tongue were affected at the onset, and the tongue still is protruded slightly to the right. She can understand everything said to her, and read perfectly well. She can also write as well as ever, but she cannot repeat words and can only say one or two words. When admitted she was absolutely wordless but there was no aphonia, she has improved since admission and has been made to repeat some words, which, however, she quickly loses again. There is a faint systolic bruit over the

aortic area, but no enlargement, and the endocarditis must have been slight and quite recent.

Aneurism of Thoracic Aorta.—Dr. B. F. Jordan shewed an enormous aneurism of ascending portion of thoracic aorta. A man, aged 46, trunk maker by trade. Had had syphilis; aneurism for $7\frac{1}{2}$ years. Shortly before onset, when lifting a trunk, felt a pain in the chest and sensation of "something giving way." Before death, aneurism enormous; right half of chest pushed forwards by it; 24 inches round base, 12 inches each surface diameter, vertical, and horizontal. Occasional oozing from two small holes where galvano-puncture had been tried. Death sudden, with convulsions and pallor. *Post-mortem.*—Right pleura filled with large quantity of soft black clot. Clean circular tear into right pleura on posterior aspect of sac. Right lung collapsed. Skin formed anterior wall of aneurism. Very thick, laminated, hard clot filling aneurism, separated from skin by thin layer of soft grumous material; clot forming for years; no needle clotting. Heart and valves free from disease. Local aortic endarteritis, probably from strain, in syphilitic patient. Calcareous plates in aorta; rigid entrance to aneurism; large size and long duration; result of freedom from constitutional (arterial) degeneration; hard clot formed in sac; also result of fact that sac bulged forwards, more even than inwards, and that there never was any pressure on trachea or œsophagus.

Double Tubercular disease of Testicle.—Mr. Barling shewed this specimen, the living case had been shewn some weeks previously.

Morphæa of Lower Eyelid and Cheek.—Mr. Eales shewed a marked and rare case of this disease occurring in a young girl.

Paper.—Mr. Marsh read notes of a case of severe unilateral neuralgia of fifth and superficial cervical nerves, cured by removal of adenoid hypertrophy from the same side of the nasopharynx.

REVIEWS.

PYE'S SURGICAL HANDICRAFT.*

THIS book is presented to the reader as a description of the details of surgical work from the point of view of house surgeons and dressers. It contains a large fund of manipulative details and is evidently written by one who has had a large experience of practical surgery. Since many parts of the book are so eminently practical, especially that part which describes fractures and their treatment, it is a surprise to us that the student is not told exactly where to compress such main arteries as the femoral and the common carotid, and how to do it with the greatest ease and precision. Again, too, in the chapter on hæmorrhage the steps necessary to control primary hæmorrhage are all given an equal importance, and the student is left to choose for himself which he will use. Choice of method is no doubt an excellent thing, but for an inexperienced student to have to decide which is the best of many is a questionable advantage. The various methods of administering anæsthetics are given with great clearness, though there are some points on which we differ from the editor.

If this book were got up in a more readable form, and if the important points were emphasised more strongly, we should recommend it to the attention of students and dressers. It has fulness of detail, and this too over a wide field, but it is not given in a way to attract readers.

* Pye's Surgical Handicraft. Revised and Edited by T. H. R. Crowle, F.R.C.S., Surgical Registrar to St. Mary's Hospital, etc. Bristol : Wright and Co.

THE DIETETIC VALUE OF BREAD.*

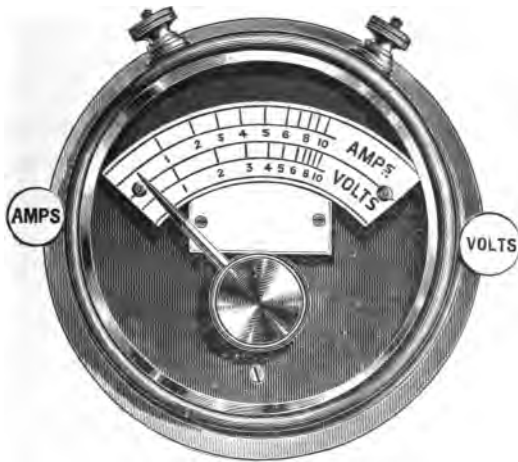
THIS admirable little book is one of the publishers' *Manuals for Students*, and places before the reader in a manner both interesting and concise the true value of bread as a food. The first of the six sections into which the book is divided treats of food, diet, and digestion, and the chapters on digestion and absorption are especially clear and succinct. The next two sections give an account of white and whole meal bread respectively; the fourth treats of the many other varieties of bread in the market; whilst the fifth and sixth sections give a description of the diseases of bread and its use as a medicinal agent. About thirty varieties of bread are passed under review, the better known kinds being fully described with tables of composition, nutritive value, and the amount of waste material in each case added. The perusal of this book will prove especially valuable to medical officers of health, and we can recommend it as a welcome addition to the literature of hygiene both popular and scientific.

New Inventions, Drugs, etc.

IMPROVED GALVANOMETER, indicating by one Instrument both Volts and Ampères.

* The Dietetic Value of Bread. By John Goodfellow, F.R.M.S.
London: Macmillan and Co. 1892.

A new form of galvanometer has been brought under our notice which is a distinct advance in the means of measuring



HALF ACTUAL SIZE.

electric currents, inasmuch as one instrument is capable of shewing both the volume and intensity of the current. It consists of a strong, well finished brass case about 4 inches in diameter and 2 inches deep, a thick bevelled edge plate glass top, with suitable terminals for connection with the source of electricity. It is also fitted with two contact keys, the one on the right side for volts, the other for ampères, and a silver plated scale or dial, the upper division being marked for ampères, and the lower for volts, each instrument being separately graduated.

To use the galvanometer, connect the black or left hand terminal with the positive, and the other with the negative pole of the battery to be tested, press the key marked "Volts,"

when the aluminium needle will give the Electro-motive Force in volts on the lower scale ; press the key marked "Amps," and the pointer will give the current in ampères on the top line of the dial. The readings being direct, no calculations are necessary, and no current passes until the contact keys are pressed.

The instrument is well made, and will stand rough usage and is most useful for gauging the strength of batteries for galvanocautery and electric lighting. For these it provides an instant and ready test, and indicates at a glance where the battery may be at fault, and for these purposes it is sufficient to graduate the instrument so as to shew the tenth of an ampère.

The instrument can be obtained from Messrs. SALT & SON, of 69, Corporation Street, Birmingham.

New Books, etc., Received.

Essentials of Physics for Students of Medicine. By F. J. BROOKWAY, M.D.
Philadelphia : W. B. Saunders.

The Medical Register and Directory of the Indian Empire, 1892. By
JAMES R. WALLACE, M.D., Editor of *Indian Medical Record*. Calcutta :
Pritchard.

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THE
BIRMINGHAM MEDICAL REVIEW.

JUNE, 1892.

ORIGINAL COMMUNICATIONS.

THE INGLEBY LECTURES
ON
THE CONDITION OF THE VASCULAR SYSTEM
IN ANÆMIC DEBILITY.

Delivered at the Queen's College, Birmingham.

BY ARTHUR FOXWELL, M.A., M.D. CANTAB., F.R.C.P.,
PHYSICIAN TO THE QUEEN'S HOSPITAL, BIRMINGHAM.

LECTURE II,

Mr. Dean and Gentlemen,

To-day I shall consider the changes which take place in the heart. These have to be viewed in two aspects: (1) the deviations from normal which are to be observed clinically; and (2) the actual morbid changes which bring about these clinically-observed deviations. Even regarding mere clinical observation there is much difference of opinion; and when we come to discuss the conditions which produce these, we at once enter the vague confines of the unknown.

The alterations of the heart are marked and characteristic; they involve the position and nature of the apex beat, the area of dulness, the occurrence of systolic murmurs, the accentuation of the pulmonary second sound, and great instability of cardiac action.

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Before discussing these, I will give my reasons for using the superficial rather than the deep cardiac dulness, notwithstanding that it is this latter which is thought far more highly of by most authorities.

They are these :—1. To percuss out the deep dulness accurately, a firm and, what I may term a severe, stroke is necessary ; such a stroke as is extremely painful in all neuralgic conditions of the heart—a stroke which may give a most injurious shock in dangerous maladies like pneumonia, pericarditis, or pleural effusion ; and yet it is in these states that an accurate knowledge of the size of the heart is most valuable.

2. It is more difficult for the senses of touch and hearing to appreciate slight differences in resistance and quality of tone when the pressure and the quantity of sound are great than when they are small. If your finger is pressed upon by a pound weight, it may be hard to detect the addition of an ounce ; whereas if the original weight had been an ounce only, the addition of another would at once have been manifest. Similarly, if a blind man is endeavouring to detect the outline of a solid object, he passes his fingers over it with great delicacy. So it is with sound : the greater the quantity the harder it is to appreciate small differences of pitch and *timbre*. Hence the severer the percussion note, the harder will it be to appreciate the value of that portion of the resulting resistance and sound which is due to a slight abnormality in the sounding board.

3. In cases where solid lung, new growth, or pleural fluid adjoins the heart, any attempt to obtain an accurate map of the deep dulness is impossible. In such it is often extremely difficult, if not impossible, to distinguish the superficial dulness of the heart from that of its neighbouring dulness, the notes and resistances of the two are so nearly alike ; and if one of these similarly sounding bodies be placed below the other, and we have to distinguish its qualities by percussing it indirectly *through* the other, it is evident that this difficulty is very greatly increased.

4. The deep dulness of the liver reaches up to the fourth

space ; when percussing out the deep cardiac dulness on the right in the fourth and fifth spaces we shall therefore be confused by this liver note. And this right dulness in these two spaces is perhaps the most valuable of all to obtain ; it is our only physical landmark of enlargement to the right, while on the left the accurate estimation of the apex beat prevents us from going very far wrong.

5. Percussing out the deep dulness requires considerably more exposure of the chest than the superficial. Any exposure which is not absolutely necessary is always to be avoided in women, and in private practice when your patient is dressed it will often prove a very serious obstacle to the accurate estimation of the deep dulness.

6. The deep dulness is said to be the more accurate in emphysema. I fail to perceive the truth of this. The fringes of the lung are the parts most liable to this degeneration. Hence, on percussing from pure lung to where the deep outline of the heart commences we are percussing from a portion of lung with normal resonance to a part which has the hyper-resonance of emphysema. It is easy to see how the commencing deep dulness of the heart *plus* the hyper-resonant fringe of emphysema may give forth a note very nearly approaching that of normal lung. It is true the note is not of quite the same quality ; but neither is it the note of the ordinary deep cardiac dulness, and any but a very sensitive and experienced ear will probably be confused by it and draw an uncertain conclusion. In fact, we have to make an inference from our past experience, from the symptoms, and from all the physical signs together, and form a judgment thereon. And this is the very thing we have to do regarding the superficial dulness. We have to act in the same way with deep-chested and large-lunged individuals. Here the whole thorax is more resonant than usual. There is no dulness so absolute as the superficial cardiac dulness in the normal individual, nor is the partial dulness over the deep outline of the heart so distinct as it is wont to be. We have to be content with a less

dull note in each case, but it is no harder to determine what this note shall be in the superficial than in the deep dulness.

7. It is said the superficial dulness, when accurately obtained, gives you no definite knowledge of the exact outline of the heart. In one sense this is true enough ; but the exact outline of the heart is not what we wish to know. We want to find out whether the heart is enlarged, the degree of this enlargement, and whether this be chiefly upwards, downwards, to the right, or to the left. These facts, after we have once fixed the position of the apex beat, the superficial dulness will determine for us quite as accurately as the deep. Indeed, after having in numerous instances percussed out as carefully as I could both dulnesses, I have never found that the superficial dulness has ever been anything but a faithful guide both as to the amount and nature of the enlargement which the heart has undergone, and I have not found cause to make any correction from my subsequent determination of the deep dulness.

8. Finally, we are all imperfect mortals. Often we grow weary and often we are pressed for time ; there is no doubt that the superficial is by far the easier and also the swifter dulness to determine. No one will gainsay that it is better to define accurately the superficial than to determine the deep in a hurried and confused manner. Moreover, I am afraid that the best of us would sometimes omit percussing the heart altogether if we trusted to deep dulness only—partly from the pain the examination causes, partly from the exposure it necessitates, and partly from the difficulty of its precise determination. And this, “sometimes” would occur most frequently in those very diseases—for example, pneumonia and pericarditis—where it is of the utmost importance daily to obtain correct information of the variations in the size of the heart.

Believing as I do that, from a therapeutic point of view, cardiac percussion is of more value than cardiac auscultation, and that it should be made use of at least as frequently, these several objections to obtaining the deep dulness seem to me to be of great and serious moment, and, moreover, to be

thoroughly real and practical ones. Do not mistake me. I am not for one moment wishful to depreciate the value of the deep dulness as an adjuvant after you have determined the superficial; but in ordinary practice we usually only have the opportunity of fixing one of these. When this is so, then I believe on the whole the determination of the superficial will prove the more valuable.

To return to the consideration of the changes in the heart :—

1. The apex beat is displaced upwards and to the left, usually being in the fourth left space nearly as far out as the nipple line, the displacement to the left being thus very little, if at all, in excess of what is required by the upward movement, if we consider the apex as a point travelling along the arc of a circle whose centre is the aortic valve. It is rarely displaced downwards, and I can only find one record of its being in the sixth space, though it is not seldom in the fifth, in which case it may extend, even as much as an inch, beyond the left nipple line. Its impulse is diffused, feeble, and sudden, unless during mental excitement, when force may replace feebleness. This feebleness may be so great as to render localisation impossible without the stethoscope. But there is another very evident impulse, chiefly seen in the second and third spaces but often in the fourth and first. It spreads from above down and from right to left, with rapid vermicular movement. In each space it starts close against the sternum, but in the third and fourth it is frequently seen to the right of this bone; in rhythm it is one continuous movement, occupying the whole period of the auricular and ventricular contractions.

2. The area of superficial or absolute dulness is not increased to the left any more than is necessitated by the position of the apex. Its increase to the right is very small, rarely reaching beyond the mid-sternum, but its increase upwards is remarkable, often reaching to the second space. It is this upward enlargement to which I particularly wish to draw your attention as it gives us our greatest help in diagnosing functional from organic mitral disease, in this latter the enlargement of dulness being more to the right than upwards.

3. There are three systolic murmurs, which I will term (anticipating my view of their causation) pulmonary, tricuspid, and mitral. The focus of the pulmonary murmur is the junction of the third left cartilage with the sternum; it is best conducted along a line leading thence up and out to the left shoulder, and it is not well heard to the right of the sternum. The tricuspid murmur is heard best over the third and fourth left spaces, but also well to the right of the sternum, and, often with marked distinctness, upwards to the second right space, and even some way along the vessels of the neck. You thus perceive that I do not think it necessary to consider a murmur heard in the last situation to be aortic in origin. I have always been able to explain its existence as arising from malfunction of the pulmonary artery or tricuspid valve. As regards the latter, we must remember that the right auricle not seldom occupies the second right space, and one can see no good reason why the audible vibrations of tricuspid regurgitation should not be conducted as far as the internal jugulars. Then, as to the pulmonary artery, it gives large branches to both apices of the lung, hence the audible vibrations of its murmur may be heard over these; also we must not forget that the pulmonary artery and aorta are closely united, each being tensely distended with the same fluid, though certainly at different pressures; still one can scarcely imagine that vibrations arising in the one would not be transmitted to the fluid in the other, and thus a pulmonary murmur would be heard along the aorta and its branches, and so simulate an aortic systolic murmur as well. We know that the murmur of aortic regurgitation is often best heard in the third left space, that is, at a point where its vibrations must reach the ear through the superimposed pulmonary artery. Both the tricuspid and pulmonary murmurs are increased on lying down, but the tricuspid much more than the pulmonary, and moreover the increased area over which the tricuspid is heard is usually in a downward direction on both sides of the sternum, but that of the pulmonary is outwards and upwards to the left shoulder.

Both murmurs may be only audible in the supine position, though plainly so then. With tricuspid murmur there is usually distinct systolic pulsation in both jugular veins on the right side of the neck, though I do not think this necessarily exists, and when it does it has to be carefully distinguished from a venous pulsation which I shall speak of as frequently occurring apart from tricuspid regurgitation. The mitral murmur is best heard at the apex; it is soft and not well conducted, and seldom entirely replaces the first sound. It is the most fugitive of the three, sometimes occurring with every third or fourth beat only, and seldom persisting for many days together, but coming and going with unaccountable vagrancy.

4. The accentuation of the second sound of the heart at the left base—that is, over the pulmonary valves—is nearly universal in all cases of anæmic debility which are up and about; sometimes it is absent in those confined to bed, but it usually becomes evident on their getting up.

5. The cardiac action is in a condition of very great instability; the least disturbance, mental or physical, is enough to very seriously change its rhythm; palpitation in more or less degree is very common. But though the sudden initiation of exertion may thus upset the heart, yet on the moderate continuance of such exertion the rhythm may improve, shewing that the original disturbance was not entirely due to absolute muscular feebleness.

Illustrations of the truth of these remarks might be multiplied indefinitely, but I will content myself with giving a few instances occurring in various varieties of anæmia.

Chlorosis.—Jemima W., 19, single, sewing machinist Her heart's apex beat in the fifth space, one inch to the left of the left nipple line. The dulness was absolute up to the third cartilage and almost so right up to the clavicle. Absolute dulness did not extend beyond the left edge of the sternum on the right. There was a systolic murmur over the pulmonary area, and another became evident at the apex, this latter being well conducted to the axilla. The pulmonary second sound was much accentuated.

Chlorosis with much soft Œdema of legs.—Sarah S., 18, single, servant. Her heart's apex beat in the fifth space and nipple line. Absolute dulness reached up to the second cartilage and on the right as far as the mid-sternal line. The pulmonary second sound was strongly accented. The external jugular vein filled from below and pulsated distinctly. There was no murmur anywhere in the erect posture, but on lying down a short systolic one was heard over a narrow oval area whose long axis reached from the fourth left cartilage up and to the left into the outer part of the first left space. The pulse was 74, of fair size, rather hard and sudden.

Simple Anæmia.—Ada B., residing at home, single, 20. The heart's apex beat in the fifth space and the nipple line. Absolute dulness reached to the third cartilage and the middle of the sternum, but there was partial dulness up to the clavicle. At the apex was a systolic murmur conducted into the axilla. A systolic murmur was also heard over the pulmonary area and was conducted up towards the left shoulder and the inner part of the right first space. A murmur and a thrill—both systolic—existed over both jugulars on both sides of the neck. There was a loud venous hum in the intra-clavicular fossa. On lying down the venous hum became less marked, the apical murmur remained unchanged, the basal murmurs were much increased in loudness, and a systolic murmur was well heard over the lower part of the sternum and to the right of this bone.

Anæmia with early phthisis at the right apex.—Carrie M., teacher, single, 22. The apex beat was in the normal situation. There was a systolic murmur in the third left space, on lying down this extended down and across the sternum. The pulmonary second sound was much accented. A *bruit de diable* was heard (on pressure only) over the internal jugular veins only.

Anæmia with frequent faintness.—Eliza B., 17, single, French polisher. Apex beat in nipple line and fourth space. Absolute dulness up to third cartilage and to mid-sternum; partial dulness reached to clavicle. At the apex was a soft systolic murmur conducted slightly towards the axilla. No murmur at the bases

but a systolic one was heard in the vessels of the neck. The heart's action was regular and the impulse forcible. The pulse small, fairly sustained, and of moderate tension.

Debility.—Emily D., 24, single, clerk. Apex beat in the fourth space and nipple line with a systolic thrill. Absolute dulness to the third cartilage and left edge of the sternum. A pulmonary systolic murmur existed in the second left space near the sternum and reached up to the outer part of the first space. The area of this murmur was increased on lying down. There were venous murmurs in the neck.

Debility with Bronchial Catarrh.—Mr. B., 19, an artist. His apex beat was in the fifth space and nipple line. Absolute dulness reached to the second cartilage and the right edge of the sternum. The action was excited and the impulse widely diffused. Pulmonary second sound slightly accented. On lying down a systolic murmur arose which was best heard in both second spaces and radiated from these (? pulmonary or tricuspid or both). Pulse was quick, but fairly strong.

Debility with irritable cough and fibrosis at the right apex (? from old pneumonia).—Mr. J., medical student, 20. Heart's apex beat at the lower edge of the fifth space in the nipple line. Its impulse was forcible and diffused with a slight thrill. The second pulmonary sound was much accented and a systolic murmur appeared in the pulmonary area on his lying down.

Debility.—Mr. H., 27, single. Apex beat in normal situation. First sound slapping. Absolute dulness to third cartilage and mid-sternum. The second pulmonary sound was accented. A systolic murmur existed in the second left space extending up and out towards the shoulder, and was also feebly heard in the third space. Occasionally another systolic murmur was heard at the apex and conducted slightly towards the axilla.

The heart constructed by tabulating the points above alluded to and taking the average value of each is as follows: apex beat at the lower border of the fifth cartilage and in the nipple line, the absolute vertical dulness reaches up into the lower part of the second left space, but on the right the absolute dulness does

not quite extend to the mid-sternal line. A pulmonary murmur was heard in eight out of nine cases; the pulmonary second sound was noted as accented in six, no note being made of it in the other three; there was an apical systolic murmur in four, and a tricuspid in three only, but the jugulars filled from below when distally compressed in one case where no tricuspid murmur is recorded.

I have given you, I think, a truthful representation of the heart as it appears to us when we examine the chest in the subjects of anæmic debility. There now remains for me the far harder task of laying before you the causes of these abnormalities; they should be such that one in no way fights against another, but rather should they be mutually inter-dependent, with logical coherence.

There are two main conditions which underlie the whole question; these are, first, the left ventricle undergoes little, if any, enlargement; and, secondly, the right ventricle always enlarges, and this, not as a secondary result, but as the chief and primary cardiac share in the anæmic changes. I am aware that this is as yet somewhat heterodox doctrine, but the more experience I have of these cases the more convinced am I of its truth. I believe the initial strain falls upon the right ventricle, the work of which is considerably increased; as a result of this it partly dilates and partly hypertrophies, and performs more work, though not sufficient to keep the pulmonary circulation up to its normal state and to overcome the failure which usually takes place in the left ventricle. I will now consider what *a priori* reasons there are for taking this view of the matter, and afterwards I will try to shew that, granted this view to be correct, it will fully explain the signs we have been discussing.

Anæmia is no local disease; the body fails as a whole, and the heart muscle no more than other muscle, nor the heart nerves more than the nervous system generally. The whole constitutional state is below par, and every action, mental and physical, the beating of the heart included, is performed feebly; but there is no evidence to shew that the feeble left ventricle is

unable to supply the diminished wants of the feebly acting body. Secondly, the left ventricle is, as the small pulse of anæmia incontrovertibly tells us, unable to send on all the blood delivered to it by the right, but this does not necessitate its enlargement; it may simply adjust matters by but partially emptying itself, and then refusing to admit the full quantity of blood from the lungs, for the wants of the anæmic body are not imperious, and it will only too easily content itself with a smaller amount, and so lead to further anæmia. It is continuous toil which affects the left ventricle—witness the irritable heart of the soldier after forced marches, and that of the blacksmith; now continuous toil, mental or physical, is an impossibility to the anæmic patient.

But anæmic people who are up and about and trying to do their work in the world, have a certain standard of speed and persistence set them by the healthy people they see around them. This standard they try to attain; they therefore start off with the vigour of a healthy person, but their feeble muscle or nerve cells soon pull them up and they have to rest, starting off again in a few minutes with more than normal vigour, to make up for lost time, but only the sooner to be re-arrested by helpless debility. Their work is therefore done in jerks, the toil during the jerk being far beyond their strength. They might perhaps do just as much in the aggregate without injury to themselves if they worked from beginning to end at a steady, slow rate commensurate with their strength; but the forces of imitation and emulation are too strong for them, and they persist in exhibitions of normal energy with subnormal bodies. But even had they perfect control of themselves, how can they avoid sudden efforts of high pressure? The anæmic school girl standing up in class has to concentrate her brain power to answer with costly speed the question rapidly passed down from one to another, or has to work sums for marks against time. The housemaid is bound to run up stairs quickly to answer her mistress's bell, to carry trays full of food, and scuttles full of coal. This quickness of answer, these trays and scuttles have been formed for healthy persons; to them they would act but as a sturdy developmental stimulus,

but to the anæmic they become a breathless and exhausting labour. If anæmics held sway over toil there would be no quickness of performance, no strenuous effort allowed. Luckily for the world's progress, but unluckily for them, they have to play a very subordinate part on life's stage, and to be content with things as they find them.

It is thus to the dangers arising from sudden transitory toil that the anæmic person is peculiarly liable. The first effect of exertion is an increase in the respirations, and very little exertion is sufficient to do this. This increase in the respirations can only mean that exertion at once makes a demand for more oxygen. Oxygen can be supplied in two ways: by increasing the amount of it taken up by each red corpuscle, or by increasing the flow of blood through the lungs. In anæmia the oxygen capacity of the red corpuscles is peculiarly small and the number of the corpuscles themselves is diminished; hence the anæmic endeavours to meet the demand for more oxygen by increasing the rate of flow through his lungs; to do this he calls upon the right ventricle to work with more than its normal force. Thus the initial strain is thrown upon it. This causes it to enlarge, and its enlargement, as we have seen, is unaccompanied by corresponding enlargement of the left ventricle.

If this position be granted me, it is easy to explain: 1. The apex beat. I have said that it is so displaced that the line* from the aortic valves to its new position is of much the same length as the line from the same valves to the normal apex beat, that is, the length of the left ventricle is unchanged. Its feebleness is partly due to feeble action from insufficient emptying, as shewn by the small pulse, and partly to its not coming so close against the chest wall owing to the enlargement of the right ventricle. The right ventricle may indeed entirely occupy the apex, so that the impulse of the left is not perceived at all. (It is for this reason that the pulse is a much surer guide to the

* Even when the length of this line is increased it does not necessarily follow that the left ventricle is enlarged: the increase may be due to the fact that the apex beat is formed by the *right* ventricle (*vide* Case 5 *infra*).

state of the left ventricle in these cases than the apex beat.) The other vermicular impulse spoken of is over the body of the right heart, and shews the movements during systole of this; it is more evident often than the apex beat, because, as we shall see directly, the right ventricle dilates chiefly at its base and thus tends to prevent the apical impulse reaching the chest wall; it is vermicular because the right ventricle is straining its utmost, just as the movements of a man who is trying to vault over a bar placed high above him, at the utmost limit of his vaulting power, are of the same vermicular character.

2. The dulness. This is due to a dilatation of the right ventricle and pulmonary artery, unaccompanied by a corresponding increase in size of the left ventricle. Hence the right ventricle's dilatation takes place chiefly in the upward direction, as it is here freest from the restraining influence of the stout left ventricular walls. The two ventricles may be regarded as a cone; if one half of this be rigid (left ventricle) and the other half uniformly distensible, it is evident that with a uniformly distending force the chief dilatation of the distensible side will occur about the free semicircular border of its base, and that portion of this border which is connected with the pulmonary artery presses upwards most as it is farthest from the restraining influence of the inferior vena cava. But the excess of dulness is partly caused by dilatation of the pulmonary artery itself; we must remember how easily this is enlarged by an increase in tension; for instance, whereas the capacity of the rabbit's aorta is only quadrupled by an increase of pressure from zero to 200 mm. of mercury, the same result is attained in the pulmonary artery by merely raising the pressure from zero to 12 mm. The accentuation of the pulmonary second sound in anæmia shews us that the tension in this artery is increased; and as the usual tension in it is not great—some 70 mm. Hg.—this increased tension will assuredly be appreciated by the artery and shew itself in inducing its dilatation. But that this peculiar form of dilatation really does happen we have the best of all proofs in the condition found *post mortem* in those who have died from debilitating

disease or from disease such as pneumonia, which throws special strain on the right ventricle. On this point I have made the following observations in the *post mortem* room of the Queen's Hospital.

Case 1.—Death from tuberculous peritonitis. The heart's apex lay beneath the fourth space in the left nipple line. The pulmonary valves were beneath the lower border of the first left space, the whole of them being to the left of the sternum. The right appendix extended for one third of an inch into the first left space. The left ventricle was firmly contracted; the right flaccid and filled with fluid clot.

Case 2.—Death from hepatic carcinoma. The heart's apex lay beneath the sixth rib, midway between the nipple and anterior axillary lines. The pulmonary valves lay beneath the middle of the second left space.

Case 3.—Death from croup and pneumonia. The heart's apex lay beneath the upper edge of the sixth rib in the left nipple line. The pulmonary valves were beneath the second left cartilage.

Case 4.—Death from carcinoma. The heart's apex lay beneath the fifth space and in the nipple line. The heart reached to the right edge of the sternum. The pulmonary valves lay beneath the upper edge of the second cartilage.

Case 5.—Death from tuberculous phthisis. I did not see this heart *in situ*, but after removal I found the heart's apex was formed by the right ventricle, which reached one-eighth of an inch below the left. The left was fairly contracted, but the right dilated. The posterior wall of the pulmonary artery (as shewn by the relative heights of the upper attachments of the adjacent valves) was a good third of an inch above the aorta; while the upper attachment of the anterior pulmonary valve was a good half-inch above the upper attachment of the posterior one—that is, five-sixths of an inch above the aorta. This case shews that the anterior wall of the pulmonary artery is pushed up more than the posterior. This condition was found in the empty dead heart; when it was full and living the difference in the position of the valves would have been much more marked.

I would also refer you for proof of this high range of dulness to some *post-mortem* reports on anæmia in Dr. W. Russell's most valuable book, entitled *Investigations into some Morbid Cardiac Conditions*, which he published in 1885.

This pushing up of the pulmonary valves shortens the distance between the extremities of the pulmonary artery, and so renders its dilatation easier.

3. The murmurs. The pulmonary murmur is due to a complicated change in the shape and position of the pulmonary artery, which constricts it at a point, and thus gives rise to a fluid vein and its sonorous eddies. This change consists in :—
(a) As we have seen, the pulmonary valves are carried upwards till they are vertically over the bifurcation, which is practically a fixed point. This necessarily brings the valves nearer the bifurcation, that is, the two ends of the artery approximate each other, and therefore the curve of its circumference is a sharper one. This carrying up of the vessel presses its superior wall against the hollow of the aortic arch. Now the tension in the aorta is more than double that in the pulmonary, and its wall is correspondingly stouter ; hence it may be looked on as a rigid body. The pressure of the pulmonary artery against it will therefore flatten the superior wall of the former. (b) Owing to the peculiar one-sided dilatation of the ventricular heart, the plane of the right auriculo-ventricular septum ceases to be in the same plane as the left, but becomes tilted from left to right upwards and backwards. This will prevent the axis of ventricle and artery being in the same straight line, and hence the blood during systole will impinge upon the side of the artery, and hence will arise eddies. This condition is still further increased by the union of the pulmonary artery to the aorta, which will not allow the posterior wall of the former to rise to anything like the same extent as the anterior one (*vide* Case v. *supra*). (c) It follows from this that the anterior semicircle of the arterial coat is also more pushed up than the posterior, and must therefore become more lax ; hence an additional reason for its compression against the aortic arch. (d) The movement of the apex to the

left and somewhat upwards still further alters the angle at which the ventricle lies to the pulmonary artery. This movement of itself, when of considerable degree, is sufficient to produce a murmur, as we know from the temporary murmurs arising in pleuritic effusion and which vanish at once on the withdrawal of the fluid. In the horizontal position the murmur is increased because the action of gravity ceases, the right ventricle therefore forces the blood into the artery with more force. This of itself would increase the murmur, but there is also no longer the weight of the right ventricle to stretch the artery lengthwise; hence this tends to dilate still more and to rise up still further against the aortic arch.

The tricuspid murmur has for its causes:—(a) The increase in the circumference of the valve ring, which is one result of the enlargement of the right ventricle; this is more especially the case as the valve ring is situated at a portion of the right ventricle which we have seen is liable to disproportionate stretching. (b) Roy and Adami have shewn that the musculi papillares act independently of the heart walls; further, that with high tension the contraction of the wall is delayed but the papillary contraction is as sharp as ever. In anæmia the tension in the right ventricle (as shewn by the accentuation of the pulmonary second sound) is increased, the ventricle is also dilated; there is, then, a double reason why the contraction of the wall should lag behind that of the musculi papillares. The too-soon contraction of these latter may at first pull the valve flaps too far down into the ventricle and so allow of regurgitation, especially as the bases of the papillary muscles are farther than normal from the valve plane, owing to the enlargement of the ventricle. (c) If (a) and (b) allow of any outflow, then the change in the angle of the valve plane will tend to produce a murmur as in the case of the pulmonary valve. (d) Hesse and Ludwig have shewn that the circumference of the base of the heart during diastole is twice that of its circumference during systole. This change is due to muscular contraction. In debility it seems more than probable that this contraction is less

marked, that is, the auriculo-ventricular openings are less diminished in area than is the case in systole of the normal heart. Here then would appear to be a further cause of regurgitation. As regards the effect of the horizontal position, this is due to gravity, as in the case of the pulmonary murmur, but as the pressure in the right auricle is much less than in the pulmonary artery this force will have a greater proportional effect.

The mitral murmur can but seldom be due to dilatation of the left ventricle, as I have shewn that this seldom occurs to any considerable extent. Its most frequent causes are: (a) lack of due contraction of the valve ring (*vide* (d) under tricuspid); (b) want of due co-ordination between the muscoli papillares and the ventricle wall. This latter has been shewn to occur by Roy and Adami with large doses of strophanthus and they suggest that in certain diseased conditions it may also arise. This inco-ordination may act in two ways; it may cause regurgitation at the commencement of the systole, by shortening the muscoli before the ventricle has shortened, or by the muscoli finishing their contraction too soon and lengthening when the ventricles are shortest, and so inducing regurgitation by allowing the valves to penetrate too far into the auricle. Probably this latter inco-ordination is the more common, for very often a short systolic murmur is heard following immediately the first sound and before the second.

That these murmurs are not due to changes in the blood is sufficiently shewn: (1) If the blood is largely diluted with water, murmurs arise, but these then occur at numerous points of the vascular system, and shew no special fondness for the localities in which they arise in anæmia. (2) Murmurs appear in cases of debility where very small, or no change is apparent in the blood, and yet they may be absent even in severe cases of chlorosis and pernicious anæmia. (3) The intractability of the disease seems in no way to depend upon their presence or absence. (4) Persons convalescing from acute disease, for example, typhoid, and suffering from anæmia, may have no murmur so long as they are confined to bed, but yet on being allowed to get up and undergo physical exertion, murmurs will arise.

4. The accentuation of the pulmonary second sound. This must be due to high tension in the pulmonary circulation. This high tension is due to the feebleness of the left ventricle, which causes it only very partially to empty itself during systole; hence, there is not room for so much blood to enter from the auricle during diastole as normally; thus the tension in the pulmonary circuit is raised. Fresh equilibrium might be restored by the right ventricle similarly refusing to empty itself, were it not that in anæmia there is, even with a normal circulation, a poor supply of oxygen to the tissues on account of the poverty of the red corpuscles, hence, any diminution of this at once produces "air hunger." This produces a reflex increase of respiration. With every expiration blood is forced from the lung towards the pulmonary veins and the pulmonary artery; on the left side it finds its way into the left heart and the systemic circulation, but on the right the pulmonary valves prevent such outlet, hence, any increase in rate or depth of the respirations raises the blood pressure in the pulmonary artery. So that the benefit derived from the increase of respiration be not lost, the right ventricle must rise equal to the occasion and strengthen its contraction so as to deal with the increased pressure in the pulmonary artery. Indeed, just as an increase of vaso-motor contraction in chronic Bright's disease increases the contractile force of the left ventricle, so does an increase in the blood pressure in the pulmonary artery increase the contractile force of the right. It is the instinct of the right ventricle to keep the oxygenating power of the blood at its normal level; to do this it will strain every effort, as I have before explained; and any of those temporary exertions which we all so frequently yet unconsciously undertake will only increase the necessity for renewed exertion on the part of the right ventricle and, therefore, the tension in the pulmonary artery.

5. The instability—irritability, if you will—of the cardiac action is due in a great measure to feebleness of cardiac muscle; in some cases fatty degeneration is found. The normal work of the body becomes thus a toil only just able to be performed by the heart; any slight increase may tax its strength to the utmost.

Compare the feeble heart for a moment with a donkey who is dragging a load almost beyond its strength; if the cart wheel happen to go over any small unevenness, such as a loose stone, the poor animal is almost upset with the sideward jerk of the cart shaft. Again, if there be even a slight gradient, it will have to strain its utmost; but if it had been harnessed to its own light coster-cart, this slight gradient and loose stone would have been merrily, almost unconsciously, dealt with. The origin of breathlessness and palpitation in anæmia arises from similar causes; the heart is harnessed to a body beyond its strength. Yet this is not all; for we sometimes see anæmics become breathless with some sudden slight exertion or emotion, who when the first surprise is over settle down to their new condition and work well and steadily to the end. Here the feebleness could not have been in the muscle; but rather in the manner in which the fresh command for exertion was delivered to the muscle; the nervous organisation must be at fault; perhaps with the hypersensitiveness of neurasthenia, which prevented the message being delivered with due toning down and modification.

During adolescence there is another important cause of heart failure apart from any anæmia. I refer to the rapid increase in size of this organ at that period. In the *British Medical Journal* for Nov. 27, 1886, Dr. Pitt has referred to the investigations of Prof. Beneke, which shew that between seven and fourteen years the annual growth in the heart is 8 per cent. of its size, but that during the changes which accompany puberty it increases 80 to 100 per cent. Now in healthy, well-fed and cared-for children the changes of puberty may occur in one year; the amount of cardiac change required in that year will thus be enormous; the heart has to double its size. It is easy to understand how with such immense developmental changes occurring in it, it may prove functionally unable to perform the physical exertions which the active life of a young boy or girl demand; hence, cardiac dyspnoea arises in apparently quite healthy and robust young people. In the same paper, Dr. Pitt has shewn that the changes in the heart are, in the main, identical with those which I have described.

ON THE TOXIC EFFECTS OF ANTIPYRIN.*

BY T. SYDNEY SHORT, M.D., M.R.C.P.

A CASE has lately come under my notice which seems to shew that in some persons the exhibition of antipyrin may be accompanied by severe symptoms of a most unpleasant and painful nature, so much so, that I think the case deserving of record. Although I have used antipyrin pretty freely myself, and seen it used extensively by others, this is the only case where I have seen any really serious symptoms occur. Many cases have been recorded in the journals where slight urticaria and oedema and even vomiting have been noted, but in very few of them did the condition appear to approach the severity of that of the patient whose story I am about to relate. One case, however, reported in the *Lancet* in 1885, ended fatally from collapse following the rapid lowering of the temperature. No cutaneous symptoms appear to have been prominent in this case. In 1889, a correspondent writing to the *Lancet* from Seville, describes a case where the symptoms approached very closely those of the case I have lately seen. There was a puffy condition of the face and lips following within four hours the exhibition of 1 gramme of antipyrin, speedily giving place to large blisters, which broke in twelve hours. It was suggested in the *Lancet* at the time that an attack of facial erysipelas was probably wrongly ascribed to the use of antipyrin, but I am now inclined to think that the correspondent in Seville was right, and that the symptoms were due to the toxic effects of the drug as he supposed. Chronic poisoning by antipyrin is said to be accompanied by a constant craving for the drug, mental depression and loss of will-power. I have not come across a case myself which presented these symptoms in a well-marked degree, although I have seen several where there was a decided tendency to fly to the drug for relief when there was any sign of the approach of a headache, but

* A Paper read before the Midland Medical Society, April 20th, 1892.

beyond this, the mental condition did not appear to be in any way affected. It is worth while remarking that anyone who is addicted to the antipyrin habit may have acute symptoms after a dose at any time ; this is shewn by the fact that the drug may be taken at one time without a bad effect, and at another with a very unpleasant result. Thus in the *Revue Médicale de la Suisse Romande* for Nov. 1888, a case is recorded where a gramme dose was taken on five occasions, and then on the sixth a similar amount was followed by vomiting, collapse, and urticaria. This point is also very well shewn in the case I now relate.

A professional man on three occasions during the last twelve months took five grains of antipyrin for the relief of headache coming on after a day of more than usual fatigue, and on each occasion he suffered from precisely the same train of symptoms, only differing from each other in degree. The attacks were characterised by redness and œdema of the face, great swelling of the lips and one side of the nose with herpetic eruption ; a scarlet rash accompanied by œdema of the sub-cutaneous tissue of the hands, feet, penis, and scrotum ; ulcers on the mucous membrane of the mouth following herpetic vesicles ; an acute inflammation of a herpetic nature round the anal margin, and pain and stiffness in the muscles of the back and shoulders. The first attack occurred in March, 1891, the second in October of the same year, and the third attack, which is the one described, on March 5th, 1892. On this day, feeling tired after more than usual exertion, with symptoms of a severe headache approaching and a social engagement for the evening in view, he took five grains of antipyrin crystals in water and went to sleep for an hour before leaving home. He felt considerably refreshed on waking but a slight headache still remained. In two hours time his friends noticed that his face was unusually flushed, and four hours after the drug was taken, when at supper, he felt a choking unpleasant feeling in the throat, which was followed by a tingling and itching sensation in the skin of the nose and the lips with swelling and redness. The feeling of fulness in the throat passed off in about half an hour, but the

swelling and redness of the face continued, and by the time he reached home and went to bed, between eleven and twelve, both lips and the left side of the nose were enormously swollen, painful, and itching, with a tense and shiny appearance.

When seen the next morning the swelling was still present, and was surmounted by several large vesicles on the nose and lower lip, discharging a thin serum; the tongue was swollen and covered all over with a white thick fur, while numerous little vesicles like herpes were seen on the insides of the cheeks and lower lip. The hands and feet were swollen and bright scarlet in colour, the rash being exactly limited by a line drawn round the wrists and ankles; the skin of the penis and scrotum was also swollen and red with a few herpetic vesicles. There was intense itching all over the reddened skin, and on one finger, where a ring was embedded in the swollen tissue, there was a blister at the margin of the depression thus formed. No rash could be seen on any other part of the body, and the patient looked as if he had dipped his hands and feet in a scarlet dye. There was great pain in the anal region where the skin and mucous membrane were swollen and discharging serum. He had a little pain on movement in the muscles of the neck, shoulders and back, with a feeling of stiffness in those regions. There was no rise in temperature, no vomiting, and no collapse.

During the second day the bowels were opened by a smart saline purge and caused the greatest pain, pain so severe that morphia had to be administered, the local application of cocaine failing to give relief. The small vesicles in the mouth became ulcers during the next day, and these, about fifteen to twenty in number, presented a circular punched out appearance; the tongue had cleaned and was quite raw with long papillæ standing out like the pile in plush. The inside of the mouth was so extremely tender that the tongue could scarcely be moved, and even liquid food of the blandest description could only be borne by brushing over the tongue and the ulcers with a 10 per cent. solution of cocaine, and any liquid containing a trace of acid or salt could not be tolerated at all. The itching of the skin and the serous discharge remained about the same.

By the end of the fifth day the vesicles on the nose and lips had scabbed over, the swelling in all parts had subsided, but not disappeared, and the mouth and anus still remained terribly painful. Pure carbolic acid applied to each of the ulcers in the mouth relieved the pain to some extent, and by the sixth day a bland spoon diet could be taken without the application of cocaine. During the next twenty-four hours a rapid improvement took place, the mouth and anus were nearly healed, all the redness and itching of the skin had gone, and the nose, now completely scabbed over, ceased to be painful.

On the eighth day he was practically well, although the interior of the nose remained sore for several days after. A slight desquamation appeared on the hands and feet about two days after this, and continued for some three weeks before it ceased completely. That antipyrin was really the cause of the symptoms was not suspected until the third attack, and then unfortunately, an emetic was out of the question until some hours had elapsed from the time they were well-marked, and even on this occasion it appeared sufficiently doubtful at first that the drug was the actual cause.

On reviewing the history of the case it was found that the three occasions on which these attacks occurred were the only occasions during the whole year in which antipyrin was taken, and the first symptoms were found to have been noticed about four hours after the drug was swallowed in each case. It was thought at first that fish might have been the cause of the earlier attacks, but on many occasions during the twelve months, fish of all kinds was taken with no untoward result, and before the last attack no fish had been taken for several days.

One point is worthy of mention, it was found out on enquiry that each time the antipyrin had been taken it was in the solid form; on each of the earlier occasions a tabloid of five grains had been swallowed like a pill, and on the third, the fresh crystals had been stirred up in water and drunk off before they were dissolved. Whenever he had taken antipyrin before it had always been dissolved in quite an ounce of water, and no un-

pleasant symptoms had occurred, so that it is possible the solid form coming in contact with the mucous membrane produced an effect that a proper dilution would have prevented.

REPORTS OF CASES.

HÆMORRHAGE IN THE COURSE OF HIP DISEASE. LIGATURE OF THE EXTERNAL ILIAC ARTERY.

BY GEORGE HEATON, F.R.C.S.,
ASSISTANT SURGEON TO THE GENERAL HOSPITAL.

A. F., a boy aged 13, was admitted into the General Hospital in November, 1890, suffering from disease of the right hip joint of some months' duration. The limb was wasted, considerably adducted and rotated inwards, and over the front and outer side of the joint was a large sinus from which thin pus was discharged daily. Excision of the head of the femur was decided upon, and on November the 28th Mr. Jolly performed the operation. An anterior incision was made, the old sinus being enlarged and the head of the bone removed with an Adams' saw. The acetabulum was found to be carious. All the carious bone was gouged out and the broken-down tubercular granulation tissue removed thoroughly from the old joint cavity.

In February, 1891, he was sent convalescent to the Jaffray Hospital. He had at that time a large granulating surface on the anterior aspect of the right thigh below the anterior iliac spine. A second sinus communicating with this existed about nine inches below the spine, and a third on the outer side of the limb. There was a profuse discharge of pus from all the sinuses. The patient himself was much emaciated, but the limb from the thigh to the toes was swollen and œdematous. No evidence of tubercle could be discovered in the lungs, and no signs of amyloid disease were present.

During March and April following he was regularly injected with tuberculin but without any improvement in the local conditions. The temperature during this time rose every evening to 101° – 103° , and he suffered from marked hectic fever.

On June 1st there was some bagging of pus on the inner side of the thigh just below Poupart's ligament. An abscess gradually pointed close to the inner side of the femoral vessels, and an incision was made through the thinned skin to let out the pus. From the sinus so formed the pus always pulsed.

On June 8th another abscess formed in the perinæum and was opened. His condition remained much the same until July 7th when in the early morning blood was discovered oozing from the sinus to the inner side of the femoral vessels. The patient had previously been straining at stool.

On removing the dressings, they were found to be saturated with blood, the tube had been pushed out, and blood was welling freely from the sinus on the inner side of the thigh. Large masses of blood clot were also found in the bed. At 8 a.m., the patient complained of much pain in the thigh and leg, he was extremely pallid. Chloroform was administered, and while pressure was made on the external iliac artery the sinuses were examined. All the suppurating tracks were distended with blood-clot and the femoral vessels were found to traverse the walls of the inner sinus forming its roof. The exact point from which the blood came could not be discovered, and as, in spite of pressure, blood continued to well up, and the patient's condition was becoming critical, it was decided to ligature the external iliac artery. Abernethy's method was followed. The artery was easily found and was ligatured with the ordinary carbolised catgut (no other ligature being at hand.) A small drainage tube was left in the lower angle of the wound, the rest was closed with silk sutures and cyanide dressings applied. The leg was thickly wrapped in wool, raised, and hot-water bottles were placed near it. When seen at 5 p.m. the foot and leg were warm, but pulseless.

On July 8th, the wound was dressed and a smaller drainage

tube substituted. There was much less swelling and œdema of the limb. The granulations of the different sinuses were extremely pale and did not bleed on being rubbed. The superficial veins in the dorsum of the foot were distended, but there was no stasis of blood in them. Temperature normal since the operation.

The wounds were again dressed on July 10th. The granulations were then more vascular and bled on being rubbed. Sensation in the foot was almost completely absent and no pulse could be felt in either anterior or posterior tibial arteries.

On July 13th, the patient, who was restless, on arching his back caused the lips of the ligature wound to gape. Faint pulsation could be detected in the anterior tibial artery, and there was marked pulsation of the pus in the sinus at the inner side of the thigh, but no recurrence of hæmorrhage.

His after history was briefly as follows :—The lips of the ligature wound granulated up, there was no recurrence of any hæmorrhage, but as the circulation in the limb became re-established, the œdema, which had completely disappeared again commenced. Several fresh abscesses formed around the anus, and involving the sphincter ani produced almost complete incontinence of the fæces.

In August he was again admitted to the General Hospital. The perinæum was so riddled with abscesses, and the boy becoming so emaciated with long continued suppuration, that it was decided to amputate at the hip-joint in the hope of saving his life. This Mr. Jolly did on August 21st, by Mr. Furneaux Jordan's method. The enlarged collateral vessels gave some trouble in the posterior part of the wound. The patient seemed to rally somewhat from the shock of the operation, but about six hours afterwards suddenly "fainted" and died.

On making a limited *post-mortem* examination, the ligature was found firmly occluding the external iliac artery, which was filled from its origin to the point of where it gave off the circumflex iliac and deep epigastric arteries, with a firm adherent clot. The internal iliac artery on the same side was much enlarged. The

hæmorrhage was found to have come from an ulcerated opening into the internal circumflex artery, which was sealed up by a firm adherent clot.

Remarks.—Hæmorrhage so severe as to threaten life is I believe a very rare complication of hip disease, and I do not find any exactly similar case recorded. The sinus from which the hæmorrhage came was situated close to the inner side of the femoral vessels. A short drainage tube was kept in it to allow of the free discharge of the pus, and this in all probability produced the ulceration in the internal circumflex artery.

Ligature of the external iliac seems perhaps a somewhat severe remedy to have recourse to in such a case. I was led to do it partly because, owing to his previous loss of blood, the continuous oozing which took place in spite of pressure on the vessels higher up, threatened to be immediately fatal whilst I was searching for the bleeding point, and partly owing to my doubt whether, even in the event of the source of the hæmorrhage being reached, a ligature would have held, owing to the sloughing condition of the surrounding parts.

It is interesting to note, that notwithstanding the extremely weak anæmic condition of the lad and the cedema of the limb prior to the ligature of the artery, gangrene never threatened. The limb, on the contrary, was much improved for a time by the disappearance of all cedema.

In conclusion I must acknowledge Mr. Jolly's kindness in giving me permission to publish the notes of his case.

something which causes glycosuria passes along the intestinal lymphatics and that glycosuria is due to an accumulation of this substance in the blood and not to the absence of a glycolytic ferment.

Sansoni attacks Lépine's theory by throwing doubt on the accuracy of the blood analyses on which it rests; he impugns the accuracy of his method, and states that by his own more accurate method he cannot confirm Lépine's results.

On the histological changes in a case of Diabetes Mellitus in a child aged nine years.—Sandmeyer (*Centralblatt für klin. Med.*, 1891, No. 28.)—This case died of coma after the disease had existed in a severe form for two years. There was glycogenic degeneration of the loops of Henle and fatty degeneration of the renal epithelium and heart muscle, but the *pancreas was quite normal*. In the cervical region of the spinal cord there was a small patch of degeneration in Goll's columns which was situated on the anterior half of these columns at the cervical enlargement and in the anterior two-thirds of these columns in the upper cervical region.

On a new Clinical form of Diabetes.—F. Hirschfeld (*Zeitschrift für Klinische Medizin*, Bd. xix., Heft 3 and 4.)—The author believes that there is a type of diabetes in which the assimilation of *albumens and fats* is diminished. These cases are characterised by early attacks of colic which do not occur later; by absence of polyuria, and sometimes by a whitish colour of the fæces, though no lumps of fat are visible.

Klinische Beiträge zur Lehre des Diabetes mellitus.—J. Leva (*Deutsches Arch. f. klin. Med.*, xlviii., 1890, Heft 1-2.)—This paper is based on nine cases with four autopsies observed during the previous six years in Eichhorst's wards. A case of diabetic phthisis conformed to Leyden's dictum as to the almost constant absence of hæmoptysis, though on the other hand Schmitz has met with this symptom in every one of his 26 cases. The reporter's case was complicated by acute hæmorrhagic nephritis, probably toxic, but which is very rare under these circumstances. At the autopsy there was atrophy of the pancreas, the solar

plexus and the left adrenal. A second case of severe type lost its sugar under the use of ammon-carb., but the lung tuberculosis which had hitherto been slight, developed rapidly and the patient died of gangrene of the lung. In the case of a little girl of twelve antipyrin, in doses of 1·6 to 5 grammes daily, caused the sugar to disappear, but had to be given up on account of unpleasant symptoms produced. Carlsbad Mühlbrunnen water at first reduced the sugar but later on failed to do so, the disease having in the meantime passed into a more severe stage. The author recommends saccharin-cocoa made in Zurich as an article of diet; the amount of saccharin is too small to be injurious. He finds the ferric chloride reaction depends greatly on the use of meat diet. He points out the difficulty of differentiating between some cases of diabetes and diseases of the nervous system, such as tabes accompanied by glycosuria, and mentions that in the latter case Fischer relies on Argyll-Robertson's pupil sign. [But this is absent in the majority of cases of tabes. R. S.]

Ueber die prognostische Bedeutung und die Aetiologie der Albuminurie bei Diabetes. — R. Schmitz (*Berliner klinische Wochenschrift*, 1891, No. 15.)—Schmitz found 824 cases of albuminuria in 1200 diabetics, in amount varying from a trace to 0·4 or even 0·9 per cent. He does not think it is necessarily a bad sign or indicative of structural alteration in the kidneys. He attributes it to excessive eating of eggs and to vesical catarrh caused by decomposition of the urine. Slight œdema may be present without albuminuria, and is due to anæmia. General dropsy is rare and was only present in 19, of whom 17 had serious complications (general tuberculosis, heart lesions, etc.).

Note sur la valeur diagnostique de la paralysie centrale de la sixième paire.—Mabboux (*Lyon méd.*, lxvii., 24, p. 213, 1891.)—The author has recorded conjugate paralysis of the ocular muscles, that is inability to look to one side, resulting from complete paralysis of one abducens and the central paralysis of the other internus, occurring in a diabetic. Shortly before death the paralysis disappeared. He thinks that such central paralyses may be generally ascribed to diabetes.

Glycosuria and Diabetes.—F. A. Collins (*Medical Chronicle*, 1891, p. 329.)—The author refers to the importance of testing the urine of applicants for life assurance. He records the case of an apparently healthy man of 38 years whose urine reduced Fehling, in consequence of his having taken a large quantity of sweet ginger beer. After abstaining from sweet drinks and foods the sugar entirely disappeared. [Does not this condition indicate a predisposition to diabetes? R.S.] In another case, also apparently healthy, sugar was detected and death followed in spite of treatment after six weeks. The third case was that of a grocer, aged 35, who was much addicted to sweet things, and developed glycosuria, wasting and thirst. On diet and opium he improved, but he was allowed to take half-a-pound of white bread daily with disastrous results. "He lost more in one week than he had gained in six months." On resuming his diet he improved slowly, but after an attack of influenza his glycosuria disappeared, though he continued to adhere to a diet of meat and green vegetables.

On the Treatment of Diabetic Coma.—E. S. Reynolds (*Medical Chronicle*, 1891, p. 338.) The author having met with about twenty fatal cases of diabetic coma, all fatal except two, recommends the plan of treatment employed in these last. After giving an aperient he made his patient with impending coma (drowsiness, pain in epigastrium, laboured breathing) drink about a gallon of water during the night and take every hour 60 grains of citrate of potash. The dose of the latter drug was diminished but the treatment appears to have been kept up for three days, by which time all the alarming symptoms had disappeared. In the next case there was an acetone odour with slight breathlessness and drowsiness; he ordered castor oil, large quantities of fluid, and 30 to 60 grs. of citrate of potash every hour. During the next 36 hours he took one and a half gallons of fluid with the result that the symptoms disappeared.

Salicylate of Sodium in the treatment of Diabetes.—E. Mansel Simpson (*The Practitioner*, 1891, No. 8.)—This was the case of a lad of 17, with a family history of tubercle. His diabetic

symptoms had been noticed only six weeks. His urine amounted to seven pints, sp. gr. 1040, loaded with sugar. On diet and 10 grs. of sodii sal. every four hours his urine was reduced to five and a quarter pints. Next week he was put on strict anti-diabetic diet, and on the twelfth day his urine was only two pints, sp. gr. 1014, containing one grain of sugar per oz. Six days later the sugar had disappeared and had not returned eight weeks afterwards. [Such good results are unfortunately very rare. R. S.]

Antipyrin in Diabetes Insipidus.—Voniovitch (*Bolnitchnaia Gazeta Botkina*, 1891, Nos. 26 and 29.)—Opitz drew attention to the value of antipyrin in the treatment of diabetes insipidus. Maslovsky (*Philad. Med. and Surg. Rep.*, July 19, 1891), has since reported substantial improvement in a lad of 16 under the use of this drug and antifebrin. Voniovitch now relates a case of permanent and complete cure; the patient, an artillery man, aged 33, whose father and mother had died from diabetes mellitus, was suddenly seized with insatiable thirst and polyuria during a severe attack of influenza. The daily quantity of urine was 13 litres. Antipyrin was given in 0.5 gramme doses eight to twelve times a day, the administration being divided into three distinct courses, one of six days, one of ten and a third of seven, with intervals of three and twenty-three days respectively. The patient was discharged well on the fourteenth day after the treatment had been discontinued, and had kept well at the date of the report, about a year after his discharge. [This was probably only a transient attack. R. S.]

BRIGHT'S DISEASE.

Ueber den Einfluss alkoholischer Getränke auf das Harnsediment des normalen Menschen.—Karl Glaser (*Deutsche med. Wochenschr.*, 1891, No. 43.)—The author has examined the urine of a number of healthy young men before and after taking alcohol with the result that he found the urine after the ingestion of alcohol contained leucocytes, tube casts, and large quantities of crystals of oxalate of lime and uric acid. He found too that

while the effects of a single dose passed off in thirty-six hours, continued excess produced a cumulative effect.

Bright's Disease popularly so-called.—Delafield (*Amer. Jour. Med. Sciences*, Oct. 1891).—The name Bright's Disease does not please some people, and various ineffective attempts have been made to supersede it. Delafield proposes to substitute for it the following classification of renal disease:—1, Congestion, acute and chronic; 2, Degeneration, acute and chronic; 3, Inflammations, divided into (*a*) acute exudative nephritis, in which he says there is evidence of exudation into the tubes, stroma, and glomeruli; (*b*) acute productive nephritis, corresponding to acute diffuse nephritis and differing from the preceding in there being a growth of connective tissue in the stroma and Malpighian capsules; (*c*) chronic productive or diffuse nephritis with exudation; and (*d*) chronic productive or diffuse nephritis without exudation, the latter being the contracting form and the other the enlarged form of chronic nephritis. [The objection to this classification is that it is wholly pathological and attempts to discover corresponding clinical types will be found impossible. R. S.]

Ueber das Verhalten der Magenverdauung bei Nierenentzündung.—E. Biernacki (*Berliner klin. Wochenschr.*, 1891, No. 25.)—The author has examined the gastric digestion in twenty-five cases of nephritis of all kinds; in none of which had there been any previous gastric derangement, and fever, heart and lung complications were excluded. The general result shewed diminution of the secretion, but this varied greatly. The hydrochloric acid in some cases was more or less diminished, in others was completely absent. The total acidity of the gastric juice was also as a rule low, where it could be estimated. Peptonisation (biuret reaction) was more or less present. Pepsin was completely absent in some cases, as were also the rennet ferment and the rennet zymogen. Uffelmann's reagent often failed to detect any lactic acid. These variable results seemed to be dependent on the intensity and duration of the disease and the influence of uræmia. The diminution of hydrochloric acid was much more

striking in the presence of oliguria and œdema than when diuresis was re-established and the dropsy had disappeared. In many of the milder cases a connection could be traced between the excretion of urine and the quantity of hydrochloric acid demonstrable in the gastric juice. No such relation existed for the ferments. No abnormal fermentations were observed; but the mechanical activity of the stomach was increased so that three-quarters of an hour after a test meal none could be found in it. He attributes these conditions to the influence of the products of tissue metamorphosis on the glands and musculature of the stomach.

The dyspnœa of advanced Bright's Disease.—Graham Steell (*The Medical Chronicle*, 1891, Vol. xv., p. 8.)—The author thinks that the *common* dyspnœa of advanced stages of Bright's disease is due to heart failure, and is not toxæmic. He points to the benefit obtained in many such cases from the hypodermic injection of morphia as inconsistent with the presence of toxæmia. He recommends digitalis, or when it fails, strophanthus, citrate of caffeine, nux vomica or strychnia. In paroxysmal dyspnœa he says the nitrites are disappointing; he recommends morphia, enjoining caution in its use, and its combination with atropine.

Strontium in Bright's Disease.—Constantine Paul (*La Semaine méd.*, Nov. 18th, 1891.)—Paul recommends the use of the bromide and nitrate of strontium in the treatment of chronic parenchymatous nephritis. He states that these salts are harmless.

(To be continued.)

GYNÆCOLOGY AND ABDOMINAL SURGERY.

BY CHRISTOPHER MARTIN, M.B., C.M. EDIN., F.R.C.S. ENG.

Deciduomata.—Prof. Sänger, of Leipzig, read a paper on this subject before the last meeting of the German Gynæcological Association. Little that is certain and much that is doubtful is known thus far about neoplasms of the uterine decidua. Of these two distinct forms have been described.

The first is simple in character, and composed of perfect decidual tissue with connective tissue and glandular epithelial elements in an atypical arrangement. These have been termed adenomata, but they are more closely allied to the connective tissue formations. They might be called fibro-adenomata. In the case described the tumour was the cause of profuse uterine hæmorrhages lasting for two years after confinement. On examination it was found to be a spongy growth, the size of a goose egg, and sessile on a broad base. This variety of tumour must be clearly distinguished from portions of placenta left in utero.

The other form of deciduoma is malignant and was first described by Sänger in 1889 as decidual sarcoma. In all cases they appear after confinement. They cause hæmorrhage and offensive discharge. Metastases occur in the bones and lungs. All the cases end fatally within seven months after delivery. The growths are mainly found *post mortem* on the interior of the uterus, but small nodules are scattered throughout the uterine muscle. When cut open the growths resemble pomegranates in form and colour, and project mushroom-like into the uterine cavity. Microscopically they are composed of unmistakable decidual cells which are polymorphous. These are embedded in a distinct network at whose intersecting points are single and multiple nuclei, here and there intermingled with giant cells with as many as thirteen nuclei. The cells are arranged partly in pseudo-alveolar groups, and partly in the form of a close-meshed reticulum with broad trabeculæ. The latter were nothing but bundles of uterine muscle eaten into by decidual cells, while the meshes of the network represented the lumina of vessels—mainly the small veins of the muscular wall of the uterus. This

would explain the numerous apoplexies scattered throughout the nodules. Exactly the same structure occurs in the secondary deposits.

Ichthyol in the diseases of women.—Escher records the results obtained by Prof. Howitz in hospital practice. Only chronic inflammations of the pelvic organs were treated with it. Good results were obtained in chronic oöphoritis and peri-oöphoritis, but the remedy proved useless in salpingitis. In three cases it seemed to produce a universal erythema.—*Gyn. og. obstet. Med.*, Vol. viii., p. 281.

Hæmatometra in utero septo.—Levy records an interesting case. The uterus was double, being divided by a vertical septum into two parts. One of these, the right, was in communication with the vagina. The left portion was occluded. The patient was 20 years of age, and had menstruated regularly since her 15th year. After marriage she began to suffer from pelvic pain, but menstruation continued regularly. On examination, a fluctuating tumour as large as a child's head was found on the left side of the lower abdomen. This was explored and proved to be a hæmatometra in the occluded portion of the uterus. It was punctured and evacuated with a trocar. The distended portion of the uterus contracted, but some time after the operation was still found to be larger and with thicker walls than the left portion. The patient made a good recovery.—*Ugeskrift for Lager*, Vol. i., 1891, p. 467.

The relation of Diabetes to changes in the female sexual organs.—Dr. Strojnowski, of Lvord, draws attention to the connection between diabetes and the female reproductive organs. He frequently found associated with the disease an atrophied condition of the uterus, and he concluded that this atrophy was a direct consequence of the disease. In cases where the disease occurs early in life it may prevent the onset of menstruation and cause an imperfect development of the uterus. Where diabetes occurs after puberty it may prematurely arrest menstruation, and the uterus and the ovaries undergo atrophy in consequence. He concludes that in cases where we meet with a small atrophied

uterus, we should be on the look out for diabetes.—*Satellite*, Jan., 1892.

Salpingitis considered in its relation to pregnancy and the puerperal state.—Dr. Charles Noble read an interesting paper on this subject before the American Gynæcological Society in September, 1891. We quote his conclusions:—

“One of the most important causes of sterility in women is salpingitis. This fact should be emphasised because of its bearing upon the management of the sterile condition. Salpingitis must be excluded in a given case before it is justifiable to treat vaginal or uterine lesions for the cure of sterility; for if salpingitis is the cause of the condition, on the one hand the treatment will be useless, and on the other it may be dangerous.

“Bilateral salpingitis with occlusion is a cause of permanent sterility.

“Unilateral salpingitis may or may not cause sterility. Pregnancy under the conditions is dangerous, and labour may be fatal through peritonitis. Until the diseased appendage has been removed pregnancy should be avoided.

“Puerperal peritonitis due to rupture of retention-cysts of the Fallopian tubes is analogous to the same condition when caused by the injury of ovarian tumours. Prompt abdominal section, removal of the diseased structures, irrigation, and drainage promise good results in these cases; because—the uterus and broad ligaments being healthy—the septic focus is thereby removed.”

The Difficulties of Curing Urethral Gonorrhœa.—Dr. José P. Gayon, in his thesis (1891) on this subject arrives at the following consoling conclusions:—1. It is a specific parasitic affection. 2. It is almost impossible to completely destroy the germ of the disease. 3. It is likewise impossible to obtain complete asepsis of the lesion produced by this germ.

The Surgical Aspect of Abscess of the Liver.—Dr. F. Semeleder advocates free incision and drainage without previously establishing adhesion of the liver to the peritoneum. In order to gain free access he sometimes performs partial resection of the

ribs. He does not insist on any particular intercostal space, but makes his incision over the point where fluctuation is most evident. He has found the abscess most frequently on the convex surface of the right lobe.

Jimenez used to say that the left lobe and the lobulus Spigelii were never affected, but the right lobe is sometimes unaffected, and Semeleder has observed two cases of liver-abscess strictly confined to the left lobe. In 297 cases, collected by Jimenez, 198 were on the convex surface of the right lobe, with 242 deaths. From these statistics it will be seen that the majority of the abscesses are accessible through the right intercostal spaces. The size of the abscess is an important factor.

There is one clinical form of liver-abscess, studied by D. Mejia, called acute interstitial hepatitis. This latter form is diagnosed with difficulty, and is almost constantly accompanied by jaundice, multiple foci, and phlegmonous pus. The greater the number of foci, the graver is the prognosis. This form of hepatic abscess is rare (6 per cent. of all cases), and its mortality is much higher.

Jimenez publishes the statistics of thirty-four cases (11 per cent.) of abscess opening into the different cavities, namely:—

Into the peritoneal cavity ...	...	...	6
Into the colon, before incision ...	...	...	2
Into the colon, after incision ...	...	...	3
Into the stomach ...	...	...	1
Into the pluræ ...	...	...	2
Into the pericardium ...	...	...	1
Into the bronchi, before incision ...	...	...	15
Into the bronchi, after incision ...	...	...	4

Pruritus.—An ointment composed of—

Menthol ...	...	...	5 parts
Balsam of Peru ...	...	...	20 „
Lanoline ...	...	...	200 „

is very serviceable.—*St. Louis Clinique*, Jan., 1892.

Laparotomy under local anæsthesia.—Schleich (*Berliner klin. Wochenschrift*, No. 35, 1891), reports three cases in which he

performed laparotomy, after inducing local anæsthesia with ether and cocaine. The patient first inhaled only sufficient chloroform to render her partially unconscious. The abdomen was then sprayed with ether until the skin was rendered insensitive. Between forty and fifty superficial and deep injections of a weak solution of cocaine (three-fourths of one per cent.) were then made along the line of the proposed incision, no more than a grain of the alkaloid being used. In order to increase the action of the drug the extremities were encircled with Esmarch's bandages. In the operations described (two ovariectomies and a gastrectomy) the patients were entirely conscious throughout the operation, and stated that the pain was slight, even when peritoneal adhesions were separated. They had no unpleasant symptoms, and made a good recovery. The method is recommended in cases in which ether and chloroform are contra-indicated. Chloroform can, of course, be resorted to at any step of the operation if imperatively indicated.

Pelvic inflammation.—Dr. Potter, of Buffalo, in a paper read before the St. Louis Medical Association, summarises his conclusions thus :—

Our knowledge of pelvic pathology has been taught us by operating surgeons who have shewn that pelvic inflammation begins in the tubes or ovaries and extends to adjacent structures through absorption or by contiguity; that it hardly ever begins in the cellular tissue, but may be carried there through the tubes and ovaries by infection, either puerperal or traumatic. He affirmed that the inflammation was in most cases a peritonitis, intra-pelvic or local in character and not a cellulitis; that para- and perimetritis were misleading and confusing terms, hence should be dropped, and that the so-called pelvic abscess was a sequence of salpingitis, ovaritis or peritonitis, not a primary accumulation in the areolar tissue itself.

The tentative management in these cases—rest, counter-irritation, hot sitz baths, vaginal douches, and attention to the digestive organs and general health—resulted in only temporary improvement, or in cure in a very small percentage. Those

reported cured were generally, if the history could be known, subject to repeated relapses, and a frequently recurring pelvic peritonitis usually indicated leaky tubes. Electricity, too, had disappointed its most sanguine advocates and needed not be considered.

In conclusion, he asserted that if these views were accepted, the logical deduction was to watch the early manifestations of the disease carefully, that competent surgical skill might be invoked before the danger to important structures had become too great to justify the expectation of successful operation.—*Nashville Journal of Med. and Surg.*, Dec., 1891.

Appendicitis.—Dr. Nicholas Senn's conclusions are these, viz.:

1. All cases of catarrhal and ulcerative appendicitis should be treated by laparotomy and excision of the appendix as soon as the lesion can be recognised.

2. Excision of the appendix in cases of simple uncomplicated appendicitis is one of the easiest and safest of all intra-abdominal operations.

3. Excisions of the appendix in cases of appendicitis before perforation has occurred, is both a curative and prophylactic measure.

4. The most constant and reliable symptoms indicating the existence of appendicitis are recurring pains and circumscribed tenderness in the region of the appendix.

5. All operations should be done through a straight incision; parallel to and directly over the cæcum.

6. The stump after excision of the appendix should be carefully disinfected, iodoformised and covered with peritoneum by suturing the serous surface of the cæcum on each side over it with a number of Lembert stitches.

7. The abdominal incision should be closed by two rows of sutures, the first embracing the peritoneum, and the second the remaining structures of the margins of the wound.

8. Drainage in such cases is unnecessary and should be dispensed with.—*Medical Progress*, March, 1892.

Absence of the body of the Uterus; Removal of the Uterine

Appendages ; Persistence of Menstruation.—Dr. Evans, of Michigan, reports this case, the clinical details of which are interesting. The patient was single and æt. 27. She first menstruated at the age of 22, but ever since she was 14 she had monthly attacks of pain lasting for one week, but without any uterine flow. Relief however followed immediately after epistaxis. Sometimes instead of epistaxis she had hæmoptysis. The external organs were well developed. The vagina was shortened and contracted, and the cervix the size of the nipple and difficult to find. On rectal examination the uterus was found to be practically absent. Between the ages of 26 and 27 she menstruated six times per vaginam, once by the bowels, and twice by the nose.

As the patient's sufferings every month were very severe and were getting worse, she consented to have the appendages removed. Dr. Evans at the operation found complete absence of the fundus and body of the uterus. Both tubes terminated in a little cup-shaped depression at the spot where the uterus should be. The ovaries and tubes, which were healthy but undersized, were removed. She made a good recovery, but six weeks later menstruation returned, and for sixteen months she menstruated regularly and with all her old pain. Then she became very irregular, and at the time of the report she had not been unwell for several months.

The occurrence of menstruation after removal of the uterine appendages and in a case where the uterus was represented only by an infantile cervix is very curious. It recalls a case recorded by Dr. Cushing, where he removed the entire uterus (with both appendages) for cancer, and where the patient continued afterwards to menstruate regularly. Mr. Lawson Tait has recorded a somewhat similar case.—*Annals of Gynecology*, Jan., 1892.

Ectopic Gestation.—Mr. Albert Morison, in a paper read before the Medico-Chirurgical Society of Edinburgh, in December, 1891, gave particulars of five cases of ectopic gestation he had observed. Of these, four were operated on, the fifth was so ill that it was deemed inadvisable to operate, but a *post mortem* examination was obtained.

Three out of the four cases operated on recovered, and in

these three, the intra-peritoneal bleeding was limited by adhesions the result of previous pelvic peritonitis. In the case that died, bleeding was not thus limited, and hence the sudden and fatal calamity.

In three of the cases, the fœtus was found. In the other two, no trace of it or of placental tissue could be discovered. Were they then really cases of ectopic gestation? Mr. Morison argues that they were. The clinical history was most suggestive. The conditions found at operation—a ruptured bleeding tube, and the intra-peritoneal hæmatocele—and at the *post-mortem* were characteristic.

In one case, the only symptoms were those of intestinal obstruction, and for this she was treated until the rupture occurred. No clue was given by the woman, though she was frequently and carefully questioned, to confirm the suspicion of an ectopic gestation. Curiously enough, the only cases in which anything like the passage of a decidua could be demonstrated were the two cases in which no trace of a fœtus could be found.

In one case, there was a previous attack of peritonitis; in two others, they had “never felt well since the last confinement.”

The most characteristic symptoms and signs met with were:—

1. A history of previous pelvic mischief.
2. Many of the symptoms of pregnancy, changes in the breast, vagina, os, and cervix.
3. Recurrent attacks of hæmorrhage preceded by painful colicky spasms in the lower abdomen and frequent rectal tenesmus.
4. The presence of a tender elastic swelling behind, or to one side of the uterus, which increased rapidly in size.

All the cases were under observation from one to six weeks, and in all these, progressive enlargement was noted.—*Edin. Med. Journal*, Feb., 1892.

On the Treatment of Ectopic Pregnancy.—Prof. Byford, of Chicago, summarises his views as follows:—“I would say, then, that if we have a case of ectopic pregnancy in the early months, it would be safe to destroy the fœtus by electricity, and keep the patient in bed until absorption has noticeably

commenced. If rupture have occurred without serious hæmorrhage, and a well-defined hematocele be discovered, we may put her to bed, diet her, keep her quiet, and wait, being at the same time ready for a laparotomy. If profuse repeated hæmorrhages occur, it is safer to operate at once according to Tait's precepts. If development have gone on after the middle of pregnancy, either an immediate abdominal section is indicated, or fœticide with operation later. In the ninth month, and at term, operate in the interests of the child, unless false labour have occurred. After that operate upon the appearance of the first evidence of sepsis."—*American Journal of Obstetrics*, Vol. xxiv., No. 11, 1891.

Cannabis Indica in the painful diseases of women.—Dr. J. B. Mattison, of Brooklyn, praises cannabis highly as an anodyne and hypnotic. It is not a poison; there is no fatal case on record. It must be given in full doses. Small doses are stimulating and exciting; large ones sedative. It is equally useful in dysmenorrhœa, especially of the spasmodic variety, and in painful chronic metritis. In many cases of uterine cancer it allays or prevents pain. It acts well in megrim, in the neuralgias and headaches so common in anæmic women. It is a safe and excellent hypnotic in insomnia.

The tincture must be given in doses of 20-60 minims, and of the solid extract, $\frac{1}{2}$ -2 grains.—*Nashville Journal of Medicine and Surgery*, December, 1891.

First Sign of the Menopause.—Naphey says—"In the change of life the first sign is visible at the lower part of the neck on a level with the lower two cervical vertebræ. There commences an accumulation of fat which often grows to form two distinct prominences, and is an infallible index of the period of a woman's life."—*New York Med. Times*.

Suppositories for Dysmenorrhœa.—Farlow recommends the following:—

℞	Ext. Cannabis Indica,	
	Ext. Belladon.	āā gr. i.
	Ol. Theobrom.	. ʒ iss.

Introduce one suppository every evening beginning five evenings before the period.—*St. Louis Clinique*, Jan., 1892.

REPORTS OF SOCIETIES.

BIRMINGHAM AND MIDLAND COUNTIES BRANCH OF THE BRITISH MEDICAL ASSOCIATION.

PATHOLOGICAL AND CLINICAL SECTION.

The Sixth Meeting was held in the Library of the Medical Institute, on Friday, April 29th, 1892, Dr. CARTER in the Chair.

Paroxysmal Tetanic Spasm in Chronic Hydrocephalus.—Dr. Carter shewed part of a brain which was taken from a girl aged 12 years. When seven months had frequent convulsions associated with retraction of the head. Ill for thirteen weeks. Was then fairly well until eight years of age, when she had a severe headache, followed by insensibility which lasted twelve hours. Rapidly got better and went to school. Three months ago the headache (generally occipital) returned, with frequent vomiting at first. In spite of this she was not ill enough to give up attendance at school for two months. At this time became subject to paroxysmal convulsive attacks, in which the head was retracted and the whole body bent backwards, and accompanied with severe pains in the back of the head. The attacks lasted from one to three hours and recurred daily; they continued up to the time of her death. From this time she had been unable to walk or even stand, owing to persistent tendency to fall backwards. She was admitted into the Queen's Hospital on March 19th and died on April 18th. There was marked double optic neuritis. Cerebellar tumour in the median lobe was diagnosed but *post mortem* nothing was discovered beyond evidence of chronic meningitis about the neighbourhood of the medulla oblongata, with firm adhesion of the latter to adjacent parts, and hydrocephalic distension of all the ventricles. (*The case will be published in detail*).

Dr. E. N. Nason shewed—(1) *A Congenital Tumour of Sternum.*—The patient first noticed the tumour when she was

about six years old. It was then about the size of a pea, was hard, moveable and painless, and was situated exactly in the middle line at about the junction of the manubrium with the gladiolus. It had grown steadily up till the time it was removed when the patient was 27 years of age. It gave rise to some pain latterly from pressure and stretching of the skin. On removal, the tumour, which measured about 2 in. by $1\frac{1}{4}$ in., was found to consist entirely of bone, irregular in shape and without any cartilage at any part. On section, it was fairly compact, except at the centre, which was occupied by what looked like loose fibrous tissue. It lay quite loose in the subcutaneous tissues, and had no attachment to the sternum.

(2) *A Thyroid Tumour from dog.*—This tumour, which had caused symptoms of pressure on trachea and œsophagus, was removed from an old dog. Its chief interest consisted in its microscopical structure, which in parts very closely resembled an ordinary epithelioma. Long processes of squamous epithelium with well-marked cell-nests were found. This could only be explained by supposing that some epithelial cells had been cut off during the closure of a branchial cleft.

Multilocular Cystic Tumour of Inferior Maxilla.—Mr. F. Marsh shewed this specimen, which he had removed, by excision of half the inferior maxilla, from a woman, æt. 44, who had been referred to him by Mr. Lawson Tait.

Twenty-four years ago, the patient received a blow on the left angle of the lower jaw, which caused some redness and swelling, this latter did not quite disappear, and less than twelve months after the blow, it was incised and scraped by a surgeon, who informed the patient that it was the size of a bantam's egg, and filled with serum. It discharged for five years and then closed. With the cessation of the discharge, the swelling began to increase and gradually attained a considerable size. Ten years ago it was again operated upon, and again three years later, and the largest cyst was incised again last year; each operation, except the last, afforded temporary relief.

She was admitted into the Queen's Hospital on April 7, 1892,

and the left half of the lower jaw was excised on the following day. A little difficulty was experienced in disarticulating, as the tumour, which was of large size and irregular in shape, involved the condyle and projected into the zygomatic fossa. The greater part of the wound healed by first intention, and a week later the patient was practically well.

Neuromata from Popliteal Nerves.—Mr. F. Marsh shewed two bulbous-ended pieces of nerve excised from the stump of the thigh of a woman æt. 30, whose leg had been amputated above the knee thirteen years ago for infantile paralysis. Five years ago she had a blow on the stump, and soon after began to suffer from constant shooting pain in the end of the stump. Two years ago Mr. Marsh excised a small neuroma from the end of the long saphenous nerve, then the site of most of the pain. She was quite free from pain for a fortnight, when similar pains commenced at the back of the stump. Every kind of treatment had been tried without avail, galvanism alone affording some relief. A fortnight ago an incision was made over the site of the lower end of the sciatic nerve, and two good sized nerves with bulbous ends were found, evidently the two popliteal, the sciatic having divided high up. The bulbous ends, with a couple of inches of each nerve, were excised, and since then the patient had not had any return of the old pain. Notwithstanding the long period that had elapsed since the amputation the nerves did not seem at all atrophied.

Vesical Calculus with Tumour of the Bladder.—Mr. Barling shewed an oxalate of lime calculus three-quarters of an ounce in weight which he had removed by the supra-pubic method from a man aged 49 with vesical tumour. The growth had been diagnosed and it was suspected to be an epithelioma, but owing to hæmorrhage a complete examination could not be made with the cystoscope. The bladder was therefore opened to complete the diagnosis and see if the tumour were removable. The latter was found to be flat, hard, and sessile, with raised, indurated margins, and its situation was the right half of the trigone and the right side of the bladder, over a circular area about two and

a half inches in diameter, which occupied also the orifice of the right ureter. Slightly fixed in the surface of the tumour was the calculus, which was quite flat at its base, though presenting the ordinary appearance of these stones on the free surface. The tumour was not removed. Up to the end of 1891 there had not been any bladder symptoms, but, after convalescence from influenza at Christmas, the patient noticed blood in his water, and a little later suffered from painful and frequent micturition. Looking to the size of the stone, to its relation to the growth, and to the recent symptoms of the latter, it appears that the presence of the calculus actually caused the epithelioma.

Nævus and Lymphangioma excised.—Mr. Barling shewed a portion of a formation which he had excised from a child's face. It occupied the side of the face practically, from the temporal ridge to half way between the zygoma and the lower margin of the jaw, and it enveloped the ear, distorting it greatly. Repeated electrolysis had been used with improvement, but with subsequent relapses. Only the larger portion in front of the ear was removed, the remainder being left for subsequent operation as the child, 3 years of age, was becoming faint. The upper margin of the tumour was first exposed, and it was then found the deep surface was well-defined, and the dissection was steadily proceeded with. Separation from the skin was difficult and tedious, and the portion below the zygoma caused difficulty owing to its deep attachments. A good recovery followed the operation. The mass removed was composed of dense fibrinous tissue in which was mixed up a quantity of cavernous venous tissue, remains of numerous thrombi and a lot of cysts varying in size from that of a pea to that of a hazel nut. The lining of the cysts was quite shiny and smooth, and the contents either clear watery fluid, or slightly yellow fluid.

Lymphatic Glands.—Mr. Thomas shewed a mass of lymphatic glands which he had removed from the neck of a patient, æt. 7 years. The glands had formed a large mass, which extended from the left mastoid process to the top of the sternum, and weighed after removal eleven ounces. The operation was a long

one on account of the proximity of the tumour to the large vessels of the neck, but the patient had recovered and the wound had healed quickly.

Mr. Thomas also shewed an instrument for fracturing and refracturing long bones, to correct deformity. It consisted of a strong iron bar through the centre of which worked a powerful screw with a pad at its extremity. Pressure was applied by the screw pad at the convexity of the deformity, and counter-pressure secured by broad leather straps passed round the limb and buckled tightly round the bar.

A specimen of Congenital Stenosis of the Aorta was shewn by Dr. Simon, and one of Cerebellar Hæmorrhage in a boy by Dr. J. R. Ratcliffe.

REVIEWS.

A TREATISE ON THE LIGATION OF THE GREAT ARTERIES IN CONTINUITY.*

A TREATISE of between five and six hundred pages makes such a serious demand upon the time of surgeons desirous of keeping themselves *au courant* with modern developments that only very grave reasons can justify authors in presenting such a work to the medical world. We are ready however to acknowledge that the "grievous mortality" from hæmorrhage, which has followed ligation in continuity, is a matter of such importance as to call for the fullest possible investigation and, seeing that we have here recorded the results of work extending over some six years, it is not surprising that the book should have grown into very large proportions. Owing to the length of time expended on

* A Treatise on the Ligation of the Great Arteries in Continuity, with Observations on the Nature, Progress, and Treatment of Aneurism. By Charles A. Ballance, M.B., M.S., Lond., F.R.C.S., and Walter Edmunds, M.A., M.C. Cantab., F.R.C.S. London: Macmillan and Co.

the enquiry and to the fact that some of the work has already been presented at the Medico-Chirurgical Society and at the Erasmus Wilson Lectures in Pathology 1889, some of the authors' conclusions are already familiar to us, but we think they have done well to present them here afresh and so make their book a complete argument.

Attention is first directed to the importance of hæmorrhage in man after ligation in continuity, and modern statistics are given shewing the frequency with which this accident happens in the different large arteries. This may be taken as the occasion for the whole book which is devoted to finding a remedy for these terrible calamities. The few pages devoted to a defence of the "value of experiments" might have been omitted as uncalled for, so we pass on to the third chapter, on the nature of arteries. This is one of considerable importance, not so much because of the new teaching it contains as because of the emphasis laid on certain points, especially on the varying thickness of the walls of the arteries in healthy people according to age and on the varying thickness of the different coats of different arteries, this considerably influencing the immediate effect of ligaturing them.

Before describing how occlusion takes place in a vessel which has been ligatured, we have a description of physiological occlusion as seen in the closure of the ductus arteriosus, etc., at the end of fœtal life, and of pathological occlusion as seen in the various forms of arteritis, syphilitic, tubercular, etc., and in obliteration by pressure. In all these, closure of the artery is shewn to depend mainly upon proliferation of the intima, to some extent upon similar changes in the outer coats, and possibly to formation of clot, which is secondarily displaced. Stress is laid upon the fact that nature in closing vessels does not divide the inner and middle coats as a ligature may, nor does she cut through the vessel altogether, on the plan revived by Abernethy, and it is argued that *therefore* hæmorrhage never occurs when nature obliterates a vessel.

Chapters 6, 7, and 8, which follow, describe the "conduct and fate of the corpuscles," and the "conduct and fate of the

clot." We have in these a most admirable study of the process of repair generally, and of the parts borne in it respectively by the leucocyte, by fibrin and by the plasma cell. The method employed is the use of Ziegler's chambers, and the results attained are in the main confirmatory of those of other observers, who assign such a small reparative rôle to the leucocyte and such a large one to the plasma cell. Although chiefly a repetition of other people's work, these investigations are so thorough as to form a very valuable contribution to our knowledge of the repair of injured tissues. It is worth noting that giant cells are described as originating sometimes by aggregation, and sometimes by incomplete segmentation, producing cells resembling those of bone marrow or myeloid sarcoma, but not such as are seen in tubercle, where a ring-like disposition of the nuclei is so often found. Pursuing the investigation of clot formation and its fate by the use of the Ziegler chambers, by preparations from experimental ligatures and from the clot of aneurisms, the proliferation of the endothelium is regarded as the important factor in obliterating the vessel, in determining the formation of the coagulum, and in replacing this by its consumption and substitution, all of which will take place in perfectly aseptic wounds, contrary to the views of some pathologists. Where ligature of a vessel is followed by re-establishment of the circulation, this appears to be due to one of three things, imperfect occlusion at the time of operation, slipping of the knot shortly after ligation, or to rapid absorption of the ligature, a diaphragm being sometimes produced; but evidence is adduced to shew that either of these undesirable results may occur whether the inner coats of the vessel be divided by the ligature or not.

Speaking of the "conduct and fate of the coats" in chapter 9, it is urged that two conditions are necessary if the continuity of the vessel is to be maintained. They are non-rupture of the inner coats by the ligature and asepticity of the wound. Given these, then, the ligature even if of silk, appears not to cut its way through the artery. In the next chapter, the various ligature materials are dealt with, and it is pointed out that all kinds, whether

catgut, tendon, silk, or the various metallic substances, become absorbed eventually, with the exception of gold and perhaps platinum.

The pathology of hæmorrhage will, to practical surgeons, be one of the most important features of the book. The causes of hæmorrhage after ligation in continuity are represented as, laceration of the coats and suppuration, and at page 296, we find, "where the coats are ruptured, hæmorrhage will happen most often with those arteries in which the *outer coat* is thinnest. Further, by antiseptics alone, the great arteries of the body cannot be ligatured as far as hæmorrhage is concerned with absolute safety, but this result may be expected when with asepsis is combined the employment of a suitable ligature, so applied as to occlude the artery without damaging its wall."

Chapter 15, on the choice of operation, offers three methods—(1) tying in two places and dividing between; (2) tying in one place with rupture of the coats; and (3) tying in one place without rupture. The first is unhesitatingly condemned, the second is shewn to inflict a superfluous injury, which leaves the vessel weaker than it was originally, and the third is shewn to be capable of attaining the desired result, viz., obliteration of the vessel.

In chapter 16, on choice of ligature, the various materials are reviewed, and the choice is given to the different materials in the following order: ox peritoneum, kangaroo tendon, or boiled floss silk; failing these, boiled chinese silk, chromic catgut, or silkworm gut is recommended.

So far we have had one great argument constantly pressed as a remedy for the hæmorrhage which has hitherto been so fatal after the ligature of the largest arteries—it is non-rupture of the coats. The authors recognise however that the methods of tying hitherto adopted leave the surgeon on the horns of a dilemma. Either he ties his first knot so lightly that in his anxiety not to injure the arterial coats he allows the first knot to slip before the second is applied, and hence the vessel may not be occluded; or else he ties the first knot so tightly to prevent

it slipping that he is extremely likely to divide the inner and middle coats and so inflict damage which may lead on to fatal bleeding. A remedy is offered in a method of tying which is so far as we know original. The method is by use of the *Stay knot* applied as follows :—The aneurism needle is passed round the vessel in the usual way, then threaded, say with silk, and withdrawn ; we now have a double ligature round the vessel, *both halves* of which are used. The loop of the ligature is divided and on each thread separately the first half of a reef knot is tied, the two threads lying absolutely close together, with their knots side by side. Then the two threads are taken together and the reef knot is completed. It is claimed that the first knots may be tied with such slight force as not to injure the artery, and that slipping is prevented by the mutual support of these first knots interlocking whilst the second is being tied. We have recently had an opportunity of tying the sup. femoral in this way, and beyond noting the fact that a very bulky knot is produced we have no objection to offer to the *Stay knot*.

The only other chapter calling for comment is No. xx., which contains details of the operation for ligaturing the innominate, the first part of each subclavian, and some other of the largest vessels.

In summing up the value of this work, whether one agrees with the conclusions arrived at or not, one cannot fail to recognise the ability and industry with which the whole enquiry has been conducted and the clearness with which the authors' views are expressed. The publication is beautifully printed and is illustrated most lavishly with drawings and plates of the highest merit.

It is to be hoped that Surgeons will take the earliest opportunity of putting to the only test, the practical one, the views here advocated. This is due to Messrs. Ballance and Edmunds for the care they have bestowed upon their investigation and will fill up the important gap which exists in their work, viz., the lack of actual experience in the use of their methods.

WALLER'S INTRODUCTION TO HUMAN
PHYSIOLOGY.*

THE author of this book has long been known as an enthusiastic original worker, who has made many valuable additions to our knowledge of physiology. By the publication of the present volume he has proved that he is also a clear and careful writer, having a master's grasp of his subject.

It is refreshing to find an old subject handled in a thoroughly original manner, divested of superfluity and yet made vividly interesting. We are told in the preface that "Physiology does not consist in a knowledge of recondite phenomena, of difficult names, and of complicated instruments. It should fundamentally consist in the living mental picture of what the great organs within a man's skin are like, what they are doing, how they can be examined, what happens when they are not working properly, how their actions hang together, how they may be influenced for good and for evil."

Here and there throughout the volume *new* diagrams and woodcuts are given, which are noticeable for their originality and clearness. Everywhere slavish submission to authority is conspicuously absent, and the reader is not left in a state of chaos as to what he is or is not to believe. While the writer is cautious, he is not timid, nor is he rash. Here and there a complex subject is treated tersely and yet satisfactorily. Take for instance Cheyne-Stokes breathing (p. 127) :—" *Cheyne-Stokes breathing* is characterised by a waxing and waning of the amplitude of the respiratory movements. In a typical and well-marked case the movements alternately decline to complete cessation and return to an amplitude much above the normal. No definite or conclusive cause can be assigned to this peculiarity of rhythm ; it is

* An Introduction to Human Physiology. By Augustus D. Waller, M.D., Lecturer on Physiology at St. Mary's Hospital Medical School, London, etc. London : Longmans, Green and Co. 1891.

not—as was once believed to be the case—characteristic of fatty degeneration of the heart, but makes its appearance in a variety of diseases, or in the absence of any disease at all; during normal sleep, particularly in children, a waxing and waning respiratory rhythm is of common occurrence.

All we can say in explanation is to point to the fact that the Cheyne-Stokes rhythm is to the respiratory system what the Traube-Hering rhythm is to the vaso-motor system; both rhythms are originated by medullary centres, and are about the same frequency, viz., 1 to 3 per minute; indeed the association is sometimes most definite and exact; in the rabbit, for instance, after hæmorrhage, phases of increasing and diminishing amplitude of respiration coincide with rise and fall of arterial blood-pressure; they are instances among many others of the common tendency towards 'pulsatils or rhythmic activity' manifested by all living matter."

It is difficult to say what part of the book is the best, as each subject is dealt with in a masterly manner and equally. Perhaps the chapter on digestion is one of the most satisfactory, especially in the part treating of the action of gastric juice, pepsin, the classification of proteids, etc.

The "origin and nutrition of the embryo" are considered in an Appendix, more however, from the physiological than the morphological side. A somewhat incomplete bibliography is also given, which needs revision.

At the close of the chapter on the brain, which is clearly written, there are a few remarks which are worth quoting: "It is no less important—and for the physician it is immediately and specifically important—to fully realise the power of suggestion on men's minds and bodies. Like breeds like; self-distrust in the guide gives rise to want of confidence in the guided; self-confidence in the leader raises confidence in the followers. Nothing ensures success more than the confident expectation of success; the fear of failure often brings failure as its direct consequence. The physician who knows and trusts his own resources, will carry his patient through illness, where another

man will vacillate and despond, and by his face or manner suggest failure and hasten death."

This short review fails to do justice to the book, which may be said to give, in a moderate compass, a better and more readable account of the present state of physiology than can be found elsewhere. To the practitioner, as well as to the student, it will be found to be, what so few medical books are, very pleasant reading.

A TEXT-BOOK OF THE DISEASES OF THE EAR.*

ALL English students of Otology owe a debt of gratitude to Drs. Law and Jewell for placing in their hands so excellent a translation of Dr. Gruber's well-known treatise on Diseases of the Ear. It is a source of pleasure to wade through a work by such a veteran as Professor Gruber, and those who know him know too that his text-book could not be any other than a faithful record of the writer's vast experience in this important branch of surgery.

The articles on the Anatomy and Physiology of the Ear are elaborate and take up one hundred and twenty pages. For the ordinary student too much minutiae are dwelt upon, and in a work on practical aural surgery we do not think that so much space should be given to those subjects to the exclusion perhaps of those which are more practical.

The author divides his work into two main heads—General Part and Special Part. The former division is again divided into four chapters, and among these the student will find clear and concise instructions as to the objective examination of patients. A most interesting article on Investigation of Capacity for Perception of Tone will be found scientific and instructive. The

* A Text-book of the Diseases of the Ear. By Dr. Joseph Gruber. Translated from the German edition by Edward Law, M.D., and Coleman Jewell, M.B. London: H. K. Lewis.

last chapter under the above heading, viz., General Therapeutics of Diseases of the Ear, contains rules and regulations for the application of fluids both into the external canal and Eustachian tube. These hints will be found extremely practical and useful.

The diseases proper of the various structures of the ear are fully treated of under the Special Part, the author following the usual classification by sub-dividing them again into (1) Diseases of the External Ear; (2) Diseases of the Middle Ear; (3) Diseases of the Internal Ear.

The chapter on New formations of the External Ear and their Treatment is not so full as it might be, and as the author is supposed to be writing for students, a few more clear directions with regard to the detail of the various operations would have been advantageous.

The article on Foreign Bodies in the external ear contains sound advice, which to the student cannot be too often repeated. *"Under all circumstances the employment of instruments for the purpose of extraction should be avoided as much as possible, and if they cannot be dispensed with should only be used under a good illumination."*

Dr. Gruber thus distinguishes inflammation of the middle ear—(1) Exudative inflammation of the middle ear; (2) Plastic inflammation of the middle ear. The former is again divided into catarrhal, purulent, croupous, diphtheritic.

The following chapters will well repay careful perusal:—Inflammation of the periosteum of the mastoid region; caries and necrosis of the temporal bone and of the auditory ossicles; perforation of the mastoid region; anomalies of the Eustachian tube.

The chapter on perforation of the mastoid region has been most carefully written, and full and minute instructions are given for performing these operations. All instruments and appliances are enumerated, and the indications for perforating the mastoid are dwelt upon in detail. The author gives preference to chisels, and evidently has no sympathy with the use of the drill.

Some fifty pages are devoted to diseases of the labyrinth, but the author does not advance any new theories, which help to elucidate the complex conditions met with in this region, or help us much in their treatment.

The binding of the work before us has been carelessly supervised, for pages 540 to 560 have been transposed between pages 528 and 529, and if the reader does not find them out he will be somewhat in a fog, more especially as the pages referred to are taken up with the diseases of the labyrinth.

The text-book is without doubt the most scientific treatise on otology that we are acquainted with.

ESSENTIALS OF MEDICAL PHYSICS.*

In the preface the author says—"In preparing medical students for examination in physics, I have found Ganot too large to be used as a text-book. Some elementary books on the subject do not contain all that is necessary for the student to know." There are several very good text-books on separate branches of physics filling the gap here indicated, but it would undoubtedly be convenient to have a single work covering the whole ground, and suitable for the ordinary medical student. But the author has utterly failed to supply us with such a work. His book is a jumble of molecular hypothesis, fact, and mis-statement, enough to permanently injure the scientific faculty of any student who seriously studies it. Here are a few specimens:—

"From the fact that molecules have unoccupied spaces around them, it follows that masses have *pores*." (p. 25.)

"*Repulsion* is the absence of cohesion, and is a property of gases." (p. 28.)

"It (the latent heat of water) can be proven by experiment to be 79° C." (p. 94.)

* Essentials of Medical Physics. By Fred. J. Brockway, M.D. Philadelphia: W. B. Saunders.

"The intensity (of radiant heat) is proportional to the temperature of the source." (p. 121.)

"The Electric light will not vaporize, Fe." (p. 175.)

"Electricity is of three kinds—magnetism, statical, and dynamical." (p. 222.)

Perhaps the most remarkable statement is one on p. 34 in answer to the request to the student to state and apply Newton's First Law of Motion.

"1st Law.—A body at rest remains at rest, and a body in motion moves with uniform velocity in a straight line, unless acted upon by some external force." This last clause is all that prevents perpetual motion."

One shudders to think of the narrow escape we have had. If a fire had occurred while the book was passing through the press, and if this clause had been burnt, we might, ere this, have had perpetual motion down upon us in full force.

THE MEDICAL REGISTER AND DIRECTORY OF THE INDIAN EMPIRE.*

IN producing this first edition of his Register Dr. Wallace must have had a difficult and worrying task, but it is one which he has discharged most successfully.

In addition to the information given in the English Medical Directory, as to the English Examining Boards and the English Schools of Medicine, we have similar information concerning these institutions in India. Following this is a "local list" of medical men resident in the various cities, stations, and villages throughout India, Burma, etc., and then a list of the Medical Services in India. Lastly there is an alphabetical list of all Medical Officers and Practitioners in the Indian Empire. The Register appears to supply a real want.

* The Medical Register and Directory of the Indian Empire. By James R. Wallace, M.D. Calcutta: C. J. A. Pritchard.

New Inventions, Drugs, etc.

MALTO RICINE.—We have received a specimen of Malto Ricine (Kepler Extract of Malt combined with Castor Oil.) This new preparation is a solution of Castor Oil in Kepler Extract of Malt, and the disagreeable taste of the castor oil is so masked as to make it acceptable to all classes of patients, particularly to children. It is a decided addition to our pharmaceutical resources, especially in the treatment of the diseases of childhood and old age.

New Books, etc., Received.

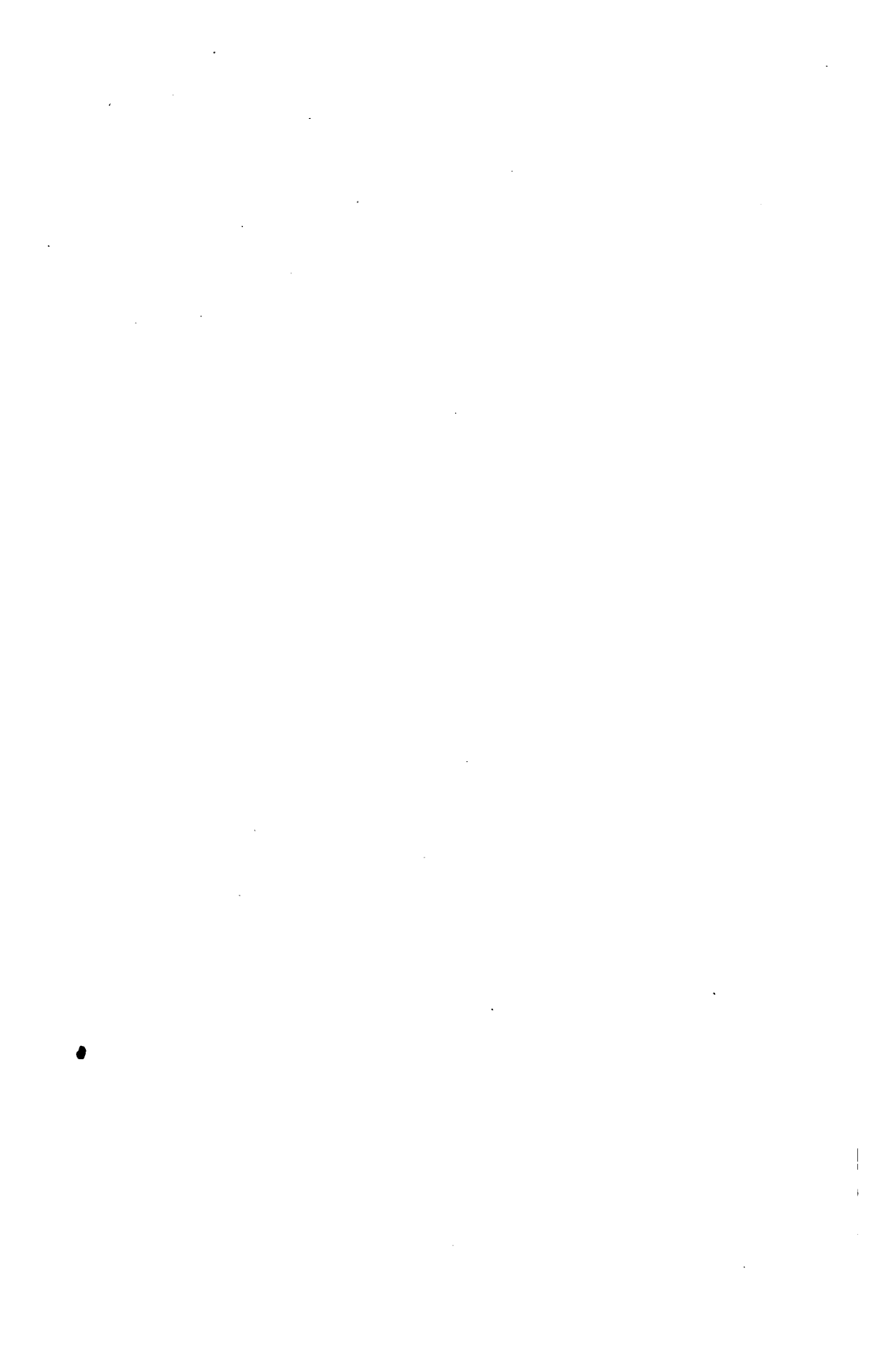
- Differentiation in Rheumatic Diseases (so-called). By HUGH LANE, L.R.C.P., M.R.C.S. Second edition. 1892. London: J. and A. Churchill.
- Diseases of the Eye; a Handbook of Ophthalmic Practice for Students and Practitioners. By G. E. DE SCHWEINITZ, M.D. Philadelphia: W. B. Saunders.
- Notes on Pathology; a Handbook for the *post mortem* room. By the late R. E. CARRINGTON, M.D., F.R.C.P. Edited, revised, and amplified by H. EVELYN CROOK, M.D., B.S., F.R.C.S., and GUY MACKESON. London: H. K. Lewis.
- Guide to the Administration of Anæsthetics. By HENRY DAVIS, M.R.C.S. Second edition, 1892. London: H. K. Lewis.
- The Disinfection of Scarlet Fever and other Infectious Diseases by Antiseptic Inunction. By J. BRENDON CURGENVEN, M.R.C.S., L.S.A. London: H. K. Lewis.
- A Text-book of Morbid Histology for Students and Practitioners. (130 Coloured Illustrations). By ROBERT BOYCE, M.B., M.R.C.S. London: H. K. Lewis.
- The Students' Handbook of Surgical Operations. By FREDERICK TREVES, F.R.C.S. With 94 Illustrations. London: Cassell and Co.
- On Gall-stones and their Treatment. By A. W. MAYO ROBSON, F.R.C.S. With 20 Engravings. London: Cassell and Co.

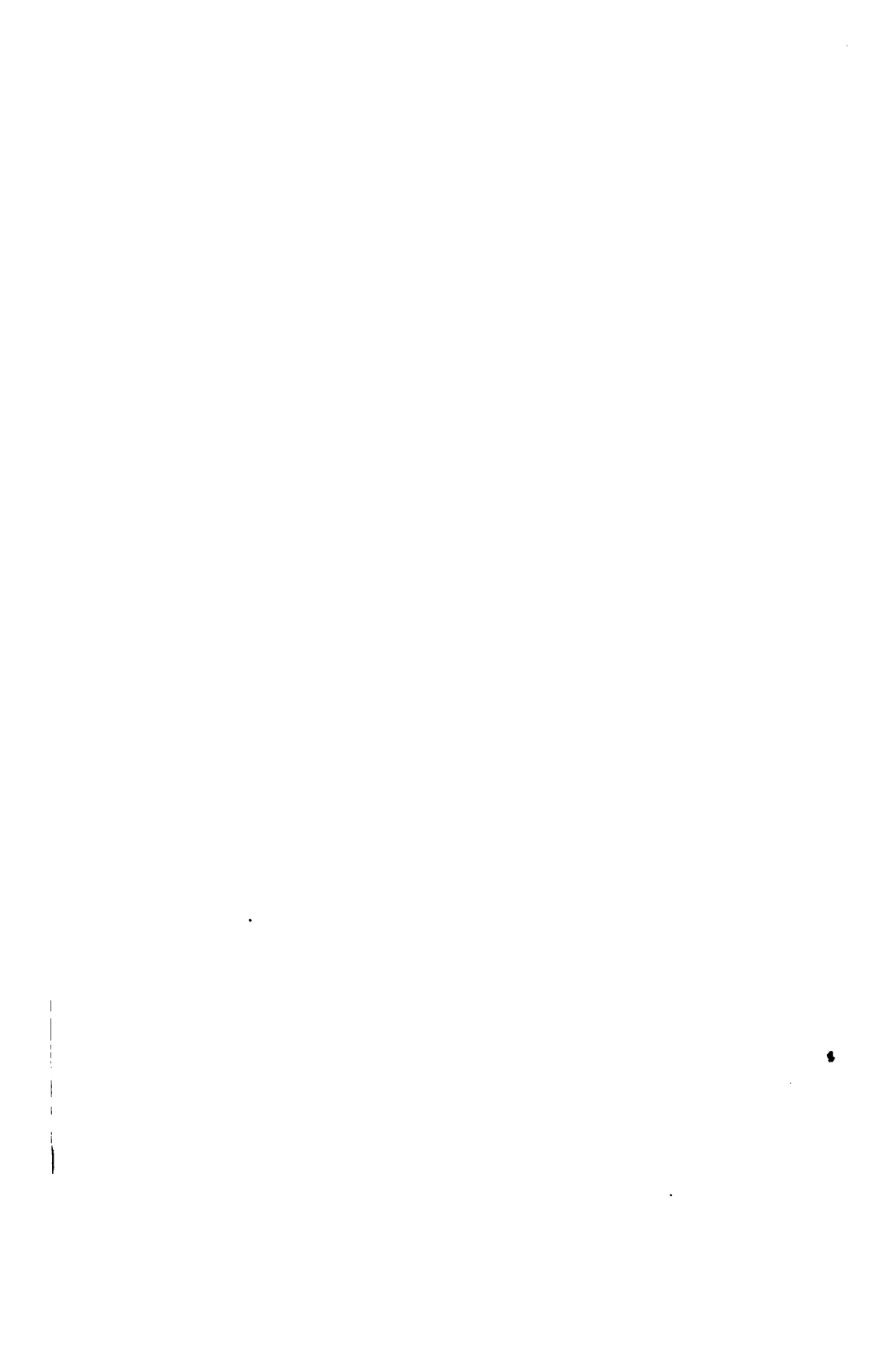
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